Top End Waterways Project

DALY RIVER CATCHMENT

Part 2
Accompanying Sub-catchment Information

Technical Report No TR99/11

J.J. Faulks
Department of Lands, Planning and Environment
Katherine, NT

July 1998
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ISBN 0 7245 4802 5

The report on the Daly River Catchment consists of two parts:

Part 1  Daly River Catchment – An Assessment of the Physical and Ecological Condition of the Daly River and its Major Tributaries
Part 2  Daly River Catchment – Accompanying Sub-catchment Information

The reports are available from the Parks and Wildlife Commission of the Northern Territory (PWCNT) Library and the National Library, Canberra, through interlibrary loan.

The reports may also be obtained from the Katherine Regional Office of the Department of Lands, Planning and Environment (DLP&E). Inquiries should be addressed to:

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Photograph front cover:  Pandanus aquaticus fruit (taken by Judy Faulks)
The project commenced in February 1995 and has been partly funded by the National Landcare Program (now known as the Natural Heritage Trust). I was employed to undertake the field assessment of the Daly River and major tributaries; produce a database to store the information collected and assist with data analysis; and to produce a report and associated maps on the outcomes.

The majority of the field surveys were conducted between June and November 1995; with the remaining surveys carried out April to May 1996, August 1996, October to November 1996 and August 1997. The following people assisted me with my field survey work:

- Angus Cameron (volunteer)
- Jesse the Jack (volunteer)
- Mathew Connelly
- Brent Whitworth
- Jim Cryer
- Sean Walsh (Parks and Wildlife Commission of the NT – PWCNT)
- Robert Hodges (Department of Lands Planning and Environment - DLP&E)
- Tundra Morscheck
- Miriam Lang (DLP&E)
- Debbie Telfer (DLP&E)

At times the survey work was ‘challenging’, with not only crocodiles to contend with, but mudflats, tidal bores, rapids, fires and hot November weather. The helpfulness of everyone throughout the field surveys was extremely appreciated. The great sites and experiences will never be forgotten.

During 1996 field surveys were also completed for the Victoria River and major tributaries and will form the basis of another report.

The contribution made by the following people was very much appreciated:

I am extremely grateful to Redgum Technology for the tireless effort made in designing and implementing the database and associated queries to my satisfaction. The GIS support and mapping were provided by Caroline Green and Renee McPhee, DLP&E (Katherine), whose attention to detail and expertise were extremely appreciated. Flow and water quality data was supplied by Doug Kinter and Bob Masters, DLP&E (Darwin). Support, information and water quality data, collected as part of the ‘Ausrivas Project’, was supplied by Jane Suggit, DLP&E (Darwin). Background information on water resources was supplied by various people within DLP&E (Darwin). Stream ordering was undertaken by Dave Williams, DLP&E (Darwin). Regrouping of landform information was undertaken by Miriam Lang, DLP&E (Katherine). Identification of the large quantity of vegetation samples was carried out by Diane Napier and the NT Herbarium (PWCNT). Presentation of the vegetation profiles was carried out by Debbie Telfer, DLP&E, based on vegetation sketches done by Caroline Green, DLP&E (Katherine). Support, information and comments were also supplied by a number of other DLP&E staff members within the Katherine and Darwin offices as well as PWCNT, DPI&F, Northern Territory University and Queensland DPI. I am very appreciative of the efforts made by the technical working group that was set up to review the stability and condition ratings used, so that they would reflect Northern Territory conditions more closely.

I am grateful to the property owners/managers who allowed access to the survey sites located on their properties and provided background information on the rivers and creeks.

Thanks also to Wolf Sievers (former Regional Director, DLP&E, Katherine) for recognising the need for such a project, for seeking initial funding and for providing continued support while in Katherine.
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Pandanus spiralis
8. INTRODUCTION

Major waterways of the Northern Territory are being utilised for recreation, pastoralism, cropping, horticulture and mining. Little is known about the condition of these rivers. The waterways are a major resource and require appropriate management in order to minimise their degradation and to achieve sustainable use.

Each of Australia’s major drainage divisions can be topographically sub-divided into river basins. Each basin defines the watershed or the catchment area of each major river system. The drainage divisions and basins for the Northern Territory, as defined by the Australian Water Resources Council, are shown in Map 1 (Part 1).

The ‘Top End Waterways Project’ commenced in February 1995 and has been partly funded by the National Landcare Program (now known as the Natural Heritage Trust). The Department of Lands, Planning and Environment has overseen the project.

The overall aim of the study was to assess, describe and report on the land and water resources of the major waterways in the Katherine Region of the NT and to prepare for publication a comprehensive report on each of those waterways.

Throughout 1995-1997 the major tributaries within the Daly River and Victoria River catchments were assessed. This report focuses on the Daly River catchment. Results for the Victoria River catchment will form the basis of another report.

The majority of the field surveys for the Daly River Catchment were conducted between June and November 1995; with the remaining surveys carried out April to June 1996, August 1996, October to November 1996 and August 1997.

The objectives of the project were to:

(i) identify the current physical and ecological condition of the major waterways and land corridors within each river catchment studied;
(ii) identify the use and management of the waterways (ie land tenure, types and levels of use, impacts, etc), highlight major river management issues and propose appropriate broad river management recommendations;
(iii) establish a ‘baseline’ for use in the long-term monitoring of the condition of these river systems; and
(iv) raise the profile of river management issues.

The general methodology framework (ie sampling strategy, survey methods and data sheets) that has been adapted for this project was developed by J.R. Anderson for the Qld Department of Primary Industries (refer Section 3 ‘Methods’ in Part 1).

Unlike the majority of other states, the Northern Territory has no Integrated Catchment Management (ICM) framework in place. The Northern Territory government has a statutory requirement to monitor natural resource condition and has responsibilities for State of the Environment reporting and, more recently, the National Land and Water Resources Audit.

It is expected that the main users of the information provided by this project will be the Northern Territory government and other groups interested in waterway management, including landcare and community groups, best practice groups and property owners or managers.

The information provided by this project is intended to assist in developing regional and catchment management strategies. In particular the results will contribute to the Katherine-Daly Natural Resources Management Strategy and the Environmental Flows Initiative program. The results can also generally contribute to the NT Weeds Management Strategy, vegetation clearing guidelines, buffer width recommendations and track and river crossing construction guidelines.

The project will help to identify key issues, problems and priorities with the rivers. It will also help to recognise the extent, processes and causes of river degradation and thereby pinpoint actions that would have to be taken in order to reverse any deterioration. Rivers and creeks that are showing signs of degradation (eg weed infestation, accelerated erosion, concentrated use, etc) will be highlighted as requiring more specific river management guidelines or plans.
The project, through the collection of baseline data, provides a reference point or “snap-shot” of what the rivers and creeks are like now. Follow-up surveys of rivers in priority areas would need to be carried out over time in order to look at the rate of change in condition and stability. The project therefore can be used as a monitoring tool.

The Daly River Catchment report consists of two parts. Part 1 provides an overview of the Daly River catchment, the methodology and the results on an overall catchment basis as well as for each sub-catchment. Part 2 provides additional sub-catchment information including sub-section maps, river cross-section diagrams and riverine vegetation profiles or lists.
9. SUMMARY OF INFORMATION PRESENTED

The following information is presented for each of the Daly River sub-sections:

1. **Table summarising the survey information collected at each site.**

   The site numbers and tributary names are listed. As well, sample point letters (eg a, b, etc) and the associated channel habitat type being sampled (eg pool, run riffle, rapid, glide, waterfall, cascade, etc) are listed. Usually two sample points are selected at each site, one at a pool habitat and one at a shallow habitat-type like a riffle or rapid. More detailed information is collected at these sample points and the table highlights whether a cross-section survey and a vegetation profile has been completed. Those sites where only photographs were taken and very basic information has been collected are called photographic sites.

2. **A map showing each sub-section.**

   Maps 27-59 show each sub-section within the Daly River catchment. Each map shows the location of sites, sample points and vegetation profiles within each sub-section. The location of longitudinal profile surveys (ie depth measurements along the streams’ ‘thalweg’) are also highlighted. Major features within each sub-section, including river crossings and boundaries of nature parks and/or national parks, are shown.

3. **Cross-section survey graphs for each site.**

   Usually two cross-section surveys are carried out at a site, one for each sample point or channel habitat type studied. The graphs present the depth measurements (that were collected in the field and have been stored within the project’s database) diagrammatically for each cross-section survey, plotted looking downstream and extending from the left upper bank across the stream channel bed to the right upper bank. The water level at the time of the survey is shown in relation to the ‘water mark’ level. The concept of a ‘water mark’ is used to provide a reference point for standardising the channel measurements and for defining the boundary between the lower and upper banks (refer to glossary). The shape of both the left and right upper banks is not shown, but rather only the height and width of these banks is shown. The location of rock outcrops is also recorded.

4. **Riverine vegetation profiles.**

   A vegetation profile survey was not completed at every site. The diagrams present the results of the vegetation profile or belt transect survey diagrammatically in order to show the zonation of, and a typical cross-section through, the riverine vegetation. The diagram includes a site plan of the belt transect showing the location of all vegetation >1.3m tall. A cross-section through a typical section of vegetation is also shown. The cross-section is at right angles to the water’s edge and extends to the upper bank or edge of the riverine vegetation. The height range and botanical name for each species has been included. A listing of other major species located at the site, but not shown in the site plan and cross-section, are also listed. Measurements for each tree and shrub (>1.3m tall) located in the profile (such as diameter at 1.3m, bole and tree height, and crown width), and ground covers identified through quadrat sampling, are stored in the project’s database.

5. **Major riverine vegetation species recorded at a site.**

   At sites where a vegetation profile survey was not completed a list of the major vegetation species recorded for each site has been compiled. Those species that are exotic and are a declared noxious weed within the Northern Territory are highlighted.

   Since the compilation of the riverine vegetation profiles and lists of the major vegetation species recorded for each site where a profile survey was not undertaken, there has been a change to the botanical name of several species listed below:
### Botanical name used
- Eucalyptus clavigera
- Eucalyptus papuana
- Vallisneria spiralis

### Revised botanical name
- Eucalyptus polysciada
- Eucalyptus bella
- Vallisneria nana

Gymnanthera oblonga has been listed as a shrub on the riverine vegetation profiles but is a climber. Other scandent shrubs (eg Phyllanthus reticulatus) have also been listed as shrubs rather than climbers.

The raw data that has been tabulated and presented diagrammatically in Part 2 is currently stored in an Access Relational Database, which has been designed for the ‘Top End Waterways Project’. This database can be used as an ongoing management tool to store and analyse the information collected over time.
Carpentaria acuminata
10. SUB-CATCHMENT INFORMATION

Maps 27-59 show each sub-section within the Daly River catchment.

The Daly River catchment has the following sub-catchments:

- Daly River
  - Estuary
  - Below Douglas River
  - Below Fergusson River
  - Below Katherine River
- Chilling Creek
- Hayward Creek
- Fish River
- Bamboo (Moon Boon) Creek
- Green Ant Creek
- Douglas River (including Douglas River, Hayes Creek and Middle Creek Sub-sections)
- Stray Creek
- Bradshaw Creek
- Dead Horse Creek
- Fergusson River (including Fergusson River below and above Edith River, Edith River, Eight Mile Creek, Cullen River and Copperfield Creek Sub-sections)
- Flora River (including Flora River and Hayward Creek and Mathison and Aroona Creeks Sub-sections)
- Katherine River
  - Below King River
  - Below Seventeen Mile Creek
  - Below Grace and Fanny Creeks
  - Below Birdie Creek
  - Upper Katherine River
- Limestone Creek
- King and Dry Rivers (including King River below and above Dry River, Dry River and Durrinyan Creek Sub-sections)
- Seventeen Mile Creek
10.1 Daly River

10.1.1 Daly River Estuary

Sub-section 1a incorporates the tidal section of the Daly River, downstream of Daly River Crossing. Sites were located on the Daly River as well as on several small tributaries (4 sites). Of the 15 sites located in this sub-section, 11 of these were fully assessed (refer to Table 10.1 and Map 27).

Table 10.1 Summary of Survey Information for Sub-section 1a – Daly River Estuary

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
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<td>A</td>
<td>Pool</td>
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<td>Pool</td>
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<td>Pool</td>
<td>√</td>
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<td>Run</td>
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<tr>
<td>11</td>
<td>Hermit (or Sandy) Creek</td>
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<td>Riffle</td>
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<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Hermit (or Sandy) Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
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</tr>
<tr>
<td>13</td>
<td>Hermit (or Sandy) Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
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<tr>
<td>16</td>
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<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Run</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>17</td>
<td>Daly River</td>
<td>A</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Daly River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Run</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Daly River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Daly River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Charlies Creek</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Figure 10.1  Cross-section Survey for Site 1a/4 – Daly River

Figure 10.2  Cross-section Survey for Site 1a/5 – Daly River
Figure 10.3  Cross-section Survey for Site 1a/8 – Daly River

Figure 10.4  Cross-section Survey for Site 1a/9 – Daly River
Figure 10.5  Cross-section Surveys for Site 1a/10 – Daly River
Figure 10.6  Cross-section Surveys for Site 1a/16 – Daly River
Figure 10.7   Cross-section Surveys for Site 1a/17 – Daly River
Figure 10.8  Cross-section Surveys for Site 1A/18 – Daly River
Figure 10.9 Cross-section Surveys for Site 1a/19 – Daly River

Daly River

Top End Waterways Project
DALY RIVER CATCHMENT
Figure 10.10  Cross-section Surveys for Site 1a/20 – Daly River
Figure 10.11  Cross-section Surveys for Site 1a/11 – Hermit or Sandy Creek
HERMIT OR SANDY CREEK - SITE 1A/13 (22.8.95)
CROSS-SECTION A - RIFFLE

Note: Bed Dry at Sampling Time

Rock outcrops: None

HERMIT OR SANDY CREEK - SITE 1A/13 (22.8.95)
CROSS-SECTION B - POOL

Note: Bed Dry at Sampling Time

Rock outcrops: None

Figure 10.12 Cross-section Surveys for Site 1a/13 – Hermit or Sandy Creek
**LEGEND**
- WE Water Edge
- WS Water Surface
- WM Water Mark
- UB Upper Bank
- UBH Upper Bank Height
- UBW Upper Bank Width
- IT Individual Tree
- CT Clump of Trees
- V Vine

**CROSS-SECTION A-A**
showing typical riverine vegetation

**SITE PLAN OF BELT TRANSECT**
showing location of vegetation (excluding ground covers)

**TREE ID No.**

<table>
<thead>
<tr>
<th>ID</th>
<th>Tree Name</th>
<th>Height Range (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C. anisophylloides</td>
<td>7-12</td>
</tr>
<tr>
<td>2</td>
<td>Morella laevigata</td>
<td>4-6</td>
</tr>
<tr>
<td>3</td>
<td>Syzygium paniculatum</td>
<td>12-18</td>
</tr>
<tr>
<td>4</td>
<td>Hardwickia sp.</td>
<td>12-18</td>
</tr>
<tr>
<td>5</td>
<td>Acacia melanoxylon</td>
<td>12-18</td>
</tr>
<tr>
<td>6</td>
<td>Eucalyptus gunnii</td>
<td>12-18</td>
</tr>
<tr>
<td>7</td>
<td>Casuarina cunninghamiana</td>
<td>12-18</td>
</tr>
<tr>
<td>8</td>
<td>Morus alba</td>
<td>12-18</td>
</tr>
<tr>
<td>9</td>
<td>Allocasuarina torulosa</td>
<td>12-18</td>
</tr>
<tr>
<td>10</td>
<td>Chlorophytum integrifolium</td>
<td>12-18</td>
</tr>
</tbody>
</table>

**OTHER SPECIES LOCATED AT SITE:**

- Forest: Allocasuarina torulosa
- Shrubs: Eucalyptus gunnii
- Grasses: Millettia laevis
- Sedges: Cyperus papyrus
- Vines: Passiflora incarnata
- Trees: *Acacia* sp., *Casuarina* sp., *Eucalyptus* sp., *Grevillea* sp., *Haematoxylon* sp., *Leea* sp., *Melilotus* sp.

**NOTES:**
1. The drawings are for diagrammatic purposes to show the location of, and a typical cross-section through, the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the river's edge and extends in the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and groundcover identified through qualitative sampling, are located in the project's database.

**TOP END WATERWAYS PROJECT**
**DALY RIVER CATCHMENT**

**RIVERINE VEGETATION PROFILE**

- **Daly River**
- Date: 18.9.95
- **Sub-section**: 1A
- **Site**: 10
- **Figure**: 13.13

---

National Landcare Program
Department of Lands, Planning & Environment
20 Daly River

Top End Waterways Project
DALY RIVER CATCHMENT

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
* Individual Tree
+ Clump of Trees
V Vine

20 Tree Height (m)

VERTICAL HEIGHT (not to scale)

CROSS-SECTION A - A
showing typical riverine vegetation

HORIZONTAL SCALE 1:200

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

OTHER SPECIES LOCATED AT SITE:
Genus: Sembola annamica
Cyperus decipiens
Physiques variis

Trees: Calamus sp.
Melaleuca argyrophylla
Nelumbo nucifera

Vines: Devra inflata

NOTES
1. The drawings are for diagrammatic purposes to show zonation of a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile Belt transect is located at a right angle to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and groundcovers identified through aerial sampling, are located in the project's database.

RIVERINE VEGETATION PROFILE
DALY RIVER

Top End Waterways Project
DALY RIVER CATCHMENT

DATE 19.9.95
Sub-section 1A Site 18
Figure 10.14
**SITE PLAN OF BELT TRANSECt**

- Showing location of vegetation (excluding ground cover)
- Scale: 1:100

---

**SPECIES LOCATED AT SITE**

<table>
<thead>
<tr>
<th>Species</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eucalyptus</td>
<td>10</td>
</tr>
<tr>
<td>Acacia</td>
<td>8</td>
</tr>
<tr>
<td>Casuarina</td>
<td>8.5</td>
</tr>
<tr>
<td>Moreton Bay Fig</td>
<td>7.5</td>
</tr>
<tr>
<td>Swamp paperbark</td>
<td>6</td>
</tr>
<tr>
<td>Gum tree</td>
<td>5.5</td>
</tr>
</tbody>
</table>

---

**Table:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eucalyptus</td>
<td>10</td>
</tr>
<tr>
<td>Acacia</td>
<td>8</td>
</tr>
<tr>
<td>Casuarina</td>
<td>8.5</td>
</tr>
<tr>
<td>Moreton Bay Fig</td>
<td>7.5</td>
</tr>
<tr>
<td>Swamp paperbark</td>
<td>6</td>
</tr>
<tr>
<td>Gum tree</td>
<td>5.5</td>
</tr>
</tbody>
</table>
Table 10.2  Major Vegetation Species Recorded at Sites 6, 8, 9, 17 and 19 located on the Daly River within Sub-section 1a – Daly River Estuary

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avicennia marina</td>
<td>Mangrove tree / shrub</td>
<td></td>
<td>1a/6, 1a/8</td>
</tr>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>1a/17</td>
</tr>
<tr>
<td>Bambusa arnhemica</td>
<td>Grass (Bamboo)</td>
<td></td>
<td>1a/17</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Casuarina cunninghamiana</td>
<td>Tree</td>
<td></td>
<td>1a/9, 1a/17, 1a/19</td>
</tr>
<tr>
<td>Cathormion umbellatum</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/17</td>
</tr>
<tr>
<td>Clerodendrum inermé</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/8, 1a/17</td>
</tr>
<tr>
<td>Cupaniopsis anacardioides</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/17</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Cyperus javanicus</td>
<td>Forb</td>
<td></td>
<td>1a/8</td>
</tr>
<tr>
<td>Cyperus sp.</td>
<td>Forb</td>
<td></td>
<td>1a/9</td>
</tr>
<tr>
<td>Diospyros calycanthes</td>
<td>Tree</td>
<td></td>
<td>1a/19</td>
</tr>
<tr>
<td>Eleutheranthera ruderalis</td>
<td>Forb</td>
<td>E</td>
<td>1a/19</td>
</tr>
<tr>
<td>Excoecaria agallocha</td>
<td>Mangrove tree / shrub</td>
<td></td>
<td>1a/6, 1a/8</td>
</tr>
<tr>
<td>Excoecaria ovalis</td>
<td>Mangrove tree / shrub</td>
<td></td>
<td>1a/9</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Ficus virens</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Flacourtia territorialis</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/17</td>
</tr>
<tr>
<td>Hibiscus tiliaceus</td>
<td>Tree</td>
<td></td>
<td>1a/8, 1a/9, 1a/19</td>
</tr>
<tr>
<td>Hypoestes floribunda</td>
<td>Forb</td>
<td></td>
<td>1a/17</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>1a/9, 1a/17</td>
</tr>
<tr>
<td>Macroptilium lathyroides</td>
<td>Forb</td>
<td>E</td>
<td>1a/19</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>1a/9, 1a/17, 1a/19</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Parkinsonia aculeata</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>1a/8, 1a/9</td>
</tr>
<tr>
<td>Phragmites karka</td>
<td>Grass</td>
<td></td>
<td>1a/9, 1a/17</td>
</tr>
<tr>
<td>Phyllanthus reticulatus</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/19</td>
</tr>
<tr>
<td>Pongamia pinnata</td>
<td>Tree</td>
<td></td>
<td>1a/8, 1a/17</td>
</tr>
<tr>
<td>Schoenoplectus litoralis</td>
<td>Forb</td>
<td></td>
<td>1a/19</td>
</tr>
<tr>
<td>Sesuvium portulacastrum</td>
<td>Forb</td>
<td></td>
<td>1a/8</td>
</tr>
<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Syzygium nervosum</td>
<td>Tree</td>
<td></td>
<td>1a/17, 1a/19</td>
</tr>
<tr>
<td>Tamarindus indica</td>
<td>Tree</td>
<td>E</td>
<td>1a/17</td>
</tr>
<tr>
<td>Terminalia microcarpa</td>
<td>Tree</td>
<td></td>
<td>1a/8, 1a/9, 1a/19</td>
</tr>
<tr>
<td>Xanthium occidentale</td>
<td>Forb</td>
<td>E/N</td>
<td>1a/8, 1a/19</td>
</tr>
<tr>
<td>Xylocarpus mekangensis</td>
<td>Mangrove tree / shrub</td>
<td></td>
<td>1a/8</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
### Table 10.3  Major Vegetation Species Recorded at Sites 12 on Hermit (or Sandy) Creek and 22 on Charlies Creek located in Sub-section 1a – Daly River Estuary

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asteromyrtus symphocarpa</td>
<td>Tree</td>
<td></td>
<td>1a/22</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/12, 1a/22</td>
</tr>
<tr>
<td>Diospyros calycantha</td>
<td>Tree</td>
<td></td>
<td>1a/12</td>
</tr>
<tr>
<td>Excoecaria parvifolia</td>
<td>Tree</td>
<td></td>
<td>1a/22</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>1a/22</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>1a/12</td>
</tr>
<tr>
<td>Melaleuca viridiflora</td>
<td>Low tree / shrub</td>
<td></td>
<td>1a/22</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>1a/12</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>1a/12</td>
</tr>
<tr>
<td>Syzygium armstrongii</td>
<td>Tree</td>
<td></td>
<td>1a/12</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

**Images:**
- Mangrove community on lower Daly River
- Phragmites karka swampland along lower Daly River
- Monsoonal vegetation along lower Daly River
- Riparian vegetation along lower Daly River
10.1.2  Daly River – Below Douglas River

Sub-section 1b encompasses the Daly River from Daly River Crossing upstream to Douglas River junction. Seven sites, located on the Daly River, were fully assessed in this sub-section (refer to Table 10.4 and Map 28).

Table 10.4  Summary of Survey Information for Sub-section 1b – Daly River Below Douglas River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daly River</td>
<td>A Pool</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Run</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daly River</td>
<td>A Pool</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Run</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Daly River</td>
<td>A Pool</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Run</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Daly River</td>
<td>A Rapid</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Pool</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Daly River</td>
<td>A Riffle</td>
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<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Pool</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>Daly River</td>
<td>A Pool</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Riffle</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Daly River</td>
<td>A Pool</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Riffle</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 10.19  Cross-section Surveys for Site 1b/1 – Daly River
Figure 10.20 Cross-section Surveys for Site 1b/2 – Daly River
Figure 10.21  Cross-section Surveys for Site 1b/3 – Daly River
Figure 10.22  Cross-section Surveys for Site 1b/4 – Daly River
Riffle on Daly River at Site 1b/8 located approximately 9km downstream of Beeboom Crossing

Figure 10.23  Cross-section Survey for Site 1b/8 – Daly River
Figure 10.24  Cross-section Surveys for Site 1b/10 – Daly River
37 Daly River

Top End Waterways Project
DALY RIVER CATCHMENT

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
T Individual Tree
C Clump of Trees
V Vine

30 Tree Height (m)
20
10

VERTICAL HEIGHT
(not to scale)

CROSS-SECTION A-A
showing typical riverine vegetation

HORIZONTAL SCALE 1:300

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

OTHER SPECIES LOCATED AT SITE:
Ferns: Amauropelta prolifera
Grasses: Cyperus decipiens
Eragrostis banaba
Trees: Nandina domestica
Pandanus sulphureus
Weeds: Typha stricta (Natural)
Phragmites communis (Natural)

NOTES
1. The drawings are for diagrammatic purposes to show vegetation of a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in its profile, and groundcovers identified through quality sampling, are located in the project's database.

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE

National Landcare Program
Department of Lands, Planning & Environment

Date 1.7.96
Sub-section 1B Site 3 Figure 10.27

GENUS SPECIES
ID No.
1-3, 4 5-5-9.5 Barringtonia acutangula
5-7 5-5-9.5 Metrosideros lucens
5 2.2 Phylanthus reticulatus
6 1.8 Gymnostoma obtusum
7, 8, 21 7-5-11 Strychnos linecata
9 15 Ficus racemosa
10-15 21-27 Casuarina cunninghamiana
10 10 Barringtonia edulis
12-14 10-31 Eucalyptus cundinamara
15-17 10-13 Alloysia ignea
18-20 3 Exocarpe parviflora

PREPARED BY:

Date 1.7.96
Sub-section 1B Site 3 Figure 10.27
### Table 10.5  Major Vegetation Species Recorded at Sites 2, 4 and 10 located on the Daly River within Subsection 1b

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternanthera nodiflora</td>
<td>Forb</td>
<td></td>
<td>1b/2, 1b/4</td>
</tr>
<tr>
<td>Ampelopteris prolifera</td>
<td>Fern</td>
<td></td>
<td>1b/4, 1b/10</td>
</tr>
<tr>
<td>Atalaya hemiglauca</td>
<td>Low tree / shrub</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Bambusa arnhemica</td>
<td>Grass (Bamboo)</td>
<td></td>
<td>1b/10</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>1b/2, 1b/4, 1b/10</td>
</tr>
<tr>
<td>Cardiospermum halicacabum</td>
<td>Vine</td>
<td>E</td>
<td>1b/2</td>
</tr>
<tr>
<td>Casuarina cunninghamiana</td>
<td>Tree</td>
<td></td>
<td>1b/2, 1b/4, 1b/10</td>
</tr>
<tr>
<td>Centaurium spicatum</td>
<td>Forb</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Cleome viscosa</td>
<td>Forb</td>
<td></td>
<td>1b/2</td>
</tr>
<tr>
<td>Coldenia procumbens</td>
<td>Forb</td>
<td></td>
<td>1b/2</td>
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<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>1b/2, 1b/4, 1b/10</td>
</tr>
<tr>
<td>Drosera sp.</td>
<td>Forb</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Eragrostis tenellula</td>
<td>Grass</td>
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<td>1b/4</td>
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<tr>
<td>Excoecaria parvifolia</td>
<td>Tree</td>
<td></td>
<td>1b/4</td>
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<td>Eucalyptus camaldulensis</td>
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<td></td>
<td>1b/2</td>
</tr>
<tr>
<td>Eucalyptus papuana</td>
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<td>1b/10</td>
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<tr>
<td>Ficus scobina</td>
<td>Low tree / shrub</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Flacourtia territroalis</td>
<td>Low tree / shrub</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Flueggea virosa</td>
<td>Low tree / shrub</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Glinus oppositifolius</td>
<td>Forb</td>
<td></td>
<td>1b/2</td>
</tr>
<tr>
<td>Gossypium hirsutum</td>
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<td>E</td>
<td>1b/4</td>
</tr>
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<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>1b/4</td>
</tr>
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<td>Leonotis nepetifolia</td>
<td>Forb</td>
<td>E/N</td>
<td>1b/4</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
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<td>1b/2, 1b/4, 1b/10</td>
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<td>Melaleuca leucadendra</td>
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<td>1b/4, 1b/10</td>
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<td>Nauclea orientalis</td>
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<td></td>
<td>1b/2, 1b/4, 1b/10</td>
</tr>
<tr>
<td>Nitella sp.</td>
<td>Forb</td>
<td></td>
<td>1b/2</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>1b/2, 1b/4, 1b/10</td>
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<tr>
<td>Paspalidium distans</td>
<td>Grass</td>
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<td>1b/2</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>1b/2, 1b/4</td>
</tr>
<tr>
<td>Phragmites karka</td>
<td>Grass</td>
<td></td>
<td>1b/2, 1b/4</td>
</tr>
<tr>
<td>Phylanthus reticulatus</td>
<td>Low tree / shrub</td>
<td></td>
<td>1b/2, 1b/4</td>
</tr>
<tr>
<td>Pseudoraphis spinosescens</td>
<td>Grass</td>
<td></td>
<td>1b/4</td>
</tr>
<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
<td></td>
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<td>Syzygium forte</td>
<td>Tree</td>
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<td>Vallisneria spiralis</td>
<td>Forb</td>
<td></td>
<td>1b/2, 1b/10</td>
</tr>
<tr>
<td>Xanthium occidentale</td>
<td>Forb</td>
<td>E/N</td>
<td>1b/2, 1b/4, 1b/10</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
10.1.3 Daly River – Below Fergusson River

Sub-section 1c encompasses the Daly River from the junction with the Douglas River upstream to Fergusson River junction. Of the 8 sites in this sub-section, all of which are located on the Daly River, 7 were fully assessed (refer Table 10.6 and Map 29).

Table 10.6 Summary of Survey Information for Sub-section 1c – Daly River Below Fergusson River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daly River</td>
<td>A</td>
<td>Pool</td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daly River</td>
<td>A</td>
<td>Riffle</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Daly River</td>
<td>A</td>
<td>Rapid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
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<td></td>
</tr>
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<td>5</td>
<td>Daly River</td>
<td>A</td>
<td>Riffle</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Daly River</td>
<td>A</td>
<td>Riffle</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>B</td>
<td>Pool</td>
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<td></td>
</tr>
<tr>
<td>8</td>
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<td>A</td>
<td>Riffle</td>
<td></td>
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<tr>
<td>9</td>
<td>Daly River</td>
<td>A</td>
<td>Run</td>
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<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Daly River</td>
<td>A</td>
<td>Rapid</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D</td>
<td>Run</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

View along the Daly River showing a riffle at Site 1c/7 located downstream of Black Bull Yard
Figure 10.29 Cross-section Surveys for Site 1c/1 – Daly River
Figure 10.30  Cross-section Surveys for Site 1c/2 – Daly River
Figure 10.31  Cross-section Surveys for Site 1c/4 – Daly River
Figure 10.32  Cross-section Surveys for Site 1c/5 – Daly River
Figure 10.33  Cross-section Surveys for Site 1c/7 – Daly River
Figure 10.34 Cross-section Survey for Site 1c/8 – Daly River

Riffle on Daly River at Site 1c/8 located approximately 7km downstream of Claravale Crossing
Figure 10.35    Cross-section Surveys for Site 1c/9 – Daly River
Figure 10.36  Cross-section Surveys for Site 1c/10 – Daly River (cont o/p)
Figure 10.36  Cross-section Surveys for Site 1c/10 – Daly River
52 Daly River
Top End Waterways Project
DALY RIVER CATCHMENT

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
Individual Tree
Clump of Trees
Vine

VERTICAL HEIGHT
(not to scale)

CROSS-SECTION A - A
showing typical riverine vegetation

HORIZONTAL SCALE 1:300

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

TREE
ID No.
HEIGHT
Range
(m)
GENUS SPECIES
1-3
4, 8, 10, 13
10, 17, 18, 22
5-7
9, 14, 16
13, 30
19, 22, 24
20-30
21, 23
23
24-41
42
1-6
5-17
15-19
11-17
8-11
2-8
2-8
10
12
2-3-5
17-5
Pandanus aquaticus
Barringtonia acutangula
Melaleuca quinquenervia
Nuttallia orientalis
Ficus racemosa
Ficus sp.
Alstonia hispida
Aspalathus parviflora
Eucalyptus pauciflora

OTHER SPECIES LOCATED AT SITE:

Grass:
Bambusa tuldoides
Cynodon dactylon
Oplismenus lasioxanthus
Phragmites karka

Shrub:
Cassia stapiana
Gynaxanthus oblonga

Tree/Wood:
Ficus sp.
Grevillea humilis
Grevillea robusta
Syzygium terebra

Vine:
*Passiflora foetida
Weeds:
*Xanthium explorationis (invasive)

*Exotic, invasive

NOTES
1. The drawings are for diagrammatic purposes to show location of the type of vegetation along the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank of the riverine vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through quadrant sampling are located in the project's database.

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE
Daly River
Sub-section 1C Site 1
Date 5.7.95
Figure 19,37
53 Daly River

Top End Waterways Project
DALY RIVER CATCHMENT

Legend:

- WE: Water Edge
- WS: Water Surface
- WM: Water Mark
- UB: Upper Bank
- UBH: Upper Bank Height
- UBW: Upper Bank Width
- I: Individual Tree
- C: Clump of Trees
- V: Vine

Cross-section A-A showing typical riverine vegetation

Horizontal Scale: 1:300

Site Plan of Belt Transect

Showing location of vegetation (excluding ground covers)

Tree ID No. | Height Range (m) | Genus Species
--- | --- | ---
1 | 0.1-3.5 | Pendera aquatica
2 | 1.0-2.0 | Melaleuca argentea
3 | 0.6-9 | Brachychiton aurantiacus
10 | 1.0-8.0 | Cissus pisanus
15, 16, 19, 22 | 1.0-5 | Syzygium lucidum
21 | 2 | Dipterix calyptrata
23, 24 | 2-3 | Myrtus irbyi
25 | 13 | Rhizophora mucronata
26 | 8 | Eucalyptus pauciflora

Notes:
1. The drawings are for diagrammatic purposes to show location of belt and typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank of the riverine vegetation.
4. Measurements for each tree located in the profile, and ground cover species identified through aerial sampling, are located in the project's database.

Top End Waterways Project
This page is part of the National Landcare Program
Department of Lands, Planning & Environment

RIVERINE VEGETATION PROFILE
Sub-section: 1C Site: 2 Date: 3.7.96

Figure 19.38
### Table 10.7 Major Vegetation Species Recorded at Sites 4, 7 and 9 located on the Daly River within Sub-section 1c

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>1c/7</td>
</tr>
<tr>
<td>Ampelopteris prolifera</td>
<td>Fern</td>
<td></td>
<td>1c/4, 1c/7</td>
</tr>
<tr>
<td>Antidesma ghaesembilla</td>
<td>Low tree / shrub</td>
<td></td>
<td>1c/7</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>1c/4, 1c/7, 1c/9</td>
</tr>
<tr>
<td>Cardiospermum halicacabum</td>
<td>Vine</td>
<td>E</td>
<td>1c/9</td>
</tr>
<tr>
<td>Casuarina cunninghamiana</td>
<td>Tree</td>
<td></td>
<td>1c/4, 1c/7, 1c/9</td>
</tr>
<tr>
<td>Cathormion umbellatum</td>
<td>Low tree / shrub</td>
<td></td>
<td>1c/4</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>1c/7, 1c/9</td>
</tr>
<tr>
<td>Diospyros calycantha</td>
<td>Tree</td>
<td></td>
<td>1c/4, 1c/7</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>1c/4, 1c/7, 1c/9</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>1c/4</td>
</tr>
<tr>
<td>Ficus scobina</td>
<td>Low tree / shrub</td>
<td></td>
<td>1c/4, 1c/7</td>
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<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>1c/4</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>1c/7, 1c/9</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>1c/7</td>
</tr>
<tr>
<td>Melaleuca sp.</td>
<td>Tree</td>
<td></td>
<td>1c/4</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
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<td>1c/4, 1c/7, 1c/9</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>1c/4, 1c/7, 1c/9</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>1c/9</td>
</tr>
<tr>
<td>Phragmites karka</td>
<td>Grass</td>
<td></td>
<td>1c/7, 1c/9</td>
</tr>
<tr>
<td>Phyllanthus reticulatus</td>
<td>Low tree / shrub</td>
<td></td>
<td>1c/7</td>
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<tr>
<td>Schoenoplectus litoralis</td>
<td>Forb</td>
<td></td>
<td>1c/4</td>
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<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
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<td>Syzygium forte</td>
<td>Tree</td>
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<td>1c/4, 1c/7, 1c/9</td>
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<td>Vallisneria spiralis</td>
<td>Forb</td>
<td></td>
<td>1c/7</td>
</tr>
<tr>
<td>Xanthium occidentale</td>
<td>Forb</td>
<td>E/N</td>
<td>1c/4, 1c/7, 1c/9</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed in the Northern Territory
Nauclea orientalis
10.1.4 Daly River – Below Katherine River

Sub-section 1d encompasses the Daly River from Fergusson River junction upstream to the Katherine River junction. Of the 3 sites assessed in this sub-section, all of which are located on the Daly River, 2 were fully assessed (refer Table 10.8 and Map 30)

Table 10.8 Summary of Survey Information for Sub-section 1d – Daly River Below Katherine River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daly River</td>
<td>A</td>
<td>Rapid</td>
<td>√</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daly River</td>
<td>A</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Daly River</td>
<td>A</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View of a cascade on the upper Daly River between Sites 1d/2 and 1d/3

View downstream along the Daly River showing rapids near Fergusson River junction
Figure 10.42  Cross-section Surveys for Site 1d/1 – Daly River
Figure 10.43  Cross-section Surveys for Site 1d/2 – Daly River
Figure 10.44  Cross-section Surveys for Site 1d/3 – Daly River
Table 10.9 Major Vegetation Species Recorded at Sites 1, 2 and 3 located on the Daly River within Sub-section 1d

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternanthera nodiflora</td>
<td>Forb</td>
<td></td>
<td>1d/2</td>
</tr>
<tr>
<td>Ampelopteris prolifera</td>
<td>Fern</td>
<td></td>
<td>1d/3</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Casuarina cunninghamiana</td>
<td>Tree</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Cathormion umbellatum</td>
<td>Low tree / shrub</td>
<td></td>
<td>1d/2, 1d/3</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Cyanthillium cinereum</td>
<td>Forb</td>
<td>E</td>
<td>1d/3</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Euphorbia hirta</td>
<td>Forb</td>
<td>E</td>
<td>1d/3</td>
</tr>
<tr>
<td>Excoecaria parvifolia</td>
<td>Tree</td>
<td></td>
<td>1d/3</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>1d/3</td>
</tr>
<tr>
<td>Ficus scobina</td>
<td>Low tree / shrub</td>
<td></td>
<td>1d/3</td>
</tr>
<tr>
<td>Melochia pyramidata</td>
<td>Forb</td>
<td>E</td>
<td>1d/3</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>1d/2, 1d/3</td>
</tr>
<tr>
<td>Phragmites karka</td>
<td>Grass</td>
<td></td>
<td>1d/2, 1d/3</td>
</tr>
<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
<td></td>
<td>1d/3</td>
</tr>
<tr>
<td>Syzygium forte</td>
<td>Tree</td>
<td></td>
<td>1d/3</td>
</tr>
<tr>
<td>Xanthium occidentale</td>
<td>Forb</td>
<td>E/N</td>
<td>1d/1, 1d/2, 1d/3</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

![Casuarina cunninghamiana](image)
10.2 Chilling Creek

Sub-section 2 includes the catchment area of Chilling and Muldiva Creeks. Three sites, located on both creeks, were fully assessed (refer Table 10.10 and Map 31).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chilling Creek</td>
<td>A</td>
<td>Run</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Chilling Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Muldiva Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10.10  Summary of Survey Information for Sub-section 2 – Chilling Creek

View along reach at Site 2/2 on Chilling Creek

View along reach at Site 2/3 on Muldiva Creek
Figure 10.45  Cross-section Surveys for Site 2/1 – Chilling Creek
CHILLING CREEK - SITE 2/2 (21.8.95)
CROSS-SECTION A - RIFFLE

- High Bank
- Water Mark
--- Water Level

Note: Bed Dry at Sampling Time

Rock outcrops: None

CHILLING CREEK - SITE 2/2 (21.8.95)
CROSS-SECTION B - POOL

- High Bank
- Water Mark
--- Water Level

Note: Bed Dry at Sampling Time

Rock outcrops: Left lower bank

Figure 10.46  Cross-section Surveys for Site 2/2 – Chilling Creek
Figure 10.47 Cross-section Surveys for Site 2/3 – Muldiva Creek

MULDIVA CREEK - SITE 2/3 (21.8.95)
CROSS-SECTION A - RIFFLE

- High Bank
- Water Mark
- Water Level

Note: Bed Dry at Sampling Time

Rock outcrops: None

Bank Height (m)
Water Mark Level
Depth (m)

Distance (m)

MULDIVA CREEK - SITE 2/3 (21.8.95)
CROSS-SECTION B - POOL

- High Bank
- Water Mark
- Water Level

Rock outcrops: None

Bank Height (m)
Water Mark Level
Depth (m)

Distance (m)
### Table 10.11  Major Vegetation Species Recorded at Site 3 located on Muldiva Creek within Sub-section 2 – Chilling Creek

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Alphitonia excelsa</td>
<td>Low tree / shrub</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Canthium schultzii</td>
<td>Low tree / shrub</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Cupaniopsis anacardioides</td>
<td>Low tree / shrub</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Diospyros calycanthera</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Erythrophleum chlorostachys</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Eucalyptus polycarpa</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Ficus coronulata</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Glinus oppositifolius</td>
<td>Forb</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Panicum trichoides</td>
<td>Grass</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Paspalidium distans</td>
<td>Grass</td>
<td></td>
<td>2/3</td>
</tr>
<tr>
<td>Syzygium armstrongii</td>
<td>Tree</td>
<td></td>
<td>2/3</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

![Melaleuca argentea](image)
10.3 Hayward Creek

Sub-section 3 includes the catchment of Hayward Creek. Two sites were fully assessed in this sub-section (refer Table 10.12 and Map 32).

Table 10.12 Summary of Survey Information for Sub-section 3 – Hayward Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hayward Creek</td>
<td>A</td>
<td>Run</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hayward Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*View along pool at Site 3/1 on Hayward Creek*

*Upper Hayward Creek at Site 3/3. This section of creek has eroded and widened due to a creek crossing.*
Figure 10.50  Cross-section Surveys for Site 3/1 – Hayward Creek
Figure 10.51  Cross-section Surveys for Site 3/3 – Hayward Creek
10.4 Fish River

Sub-section 4 includes the catchment of Fish River. Of the 5 sites located in this sub-section, 3 of these were fully assessed (refer Table 10.13 and Map 33).

Table 10.13 Summary of Survey Information for Sub-section 4 – Fish River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Fish River</td>
<td>A</td>
<td>Run</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fish River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Fish River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lilyarba Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Mut Pong Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 10.54 Cross-section Survey for Site 4/2 – Fish River

Run at Site 4/2 within Fish River Gorge
Figure 10.55  Cross-section Surveys for Site 4/4 – Fish River
Figure 10.56  Cross-section Surveys for Site 4/5 – Lilyarba Creek
### Table 10.14 Major Vegetation Species Recorded at Sites 3, 4, 5 and 6 located within Sub-section 4 – Fish River

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>4/5</td>
</tr>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>4/3, 4/4</td>
</tr>
<tr>
<td>Ammannia baccifera</td>
<td>Forb</td>
<td></td>
<td>4/6</td>
</tr>
<tr>
<td>Antidesma ghaesembilla</td>
<td>Low tree / shrub</td>
<td></td>
<td>4/4</td>
</tr>
<tr>
<td>Arundinella nepalensis</td>
<td>Grass</td>
<td></td>
<td>4/3, 4/4, 4/6</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>4/5</td>
</tr>
<tr>
<td>Buchanania obovata</td>
<td>Tree</td>
<td></td>
<td>4/4</td>
</tr>
<tr>
<td>Cyperus conicus or javanicus</td>
<td>Forb</td>
<td></td>
<td>4/4</td>
</tr>
<tr>
<td>Diospyros calycantha</td>
<td>Tree</td>
<td></td>
<td>4/5</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>4/3</td>
</tr>
<tr>
<td>Ficus coronulata</td>
<td>Tree</td>
<td></td>
<td>4/4, 4/5</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>4/4, 4/5, 4/6</td>
</tr>
<tr>
<td>Ficus virens</td>
<td>Tree</td>
<td></td>
<td>4/4</td>
</tr>
<tr>
<td>Flacourtia territorialis</td>
<td>Low tree / shrub</td>
<td></td>
<td>4/3, 4/4, 4/5</td>
</tr>
<tr>
<td>Hibiscus sabdariffa</td>
<td>Forb</td>
<td>E</td>
<td>4/4</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>4/4, 4/5, 4/6</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>4/3, 4/4, 4/5, 4/6</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>4/3, 4/4, 4/5</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>4/4, 4/5, 4/6</td>
</tr>
<tr>
<td>Nelsonia campestris</td>
<td>Forb</td>
<td></td>
<td>4/4, 4/6</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>4/3, 4/4</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>4/3, 4/6</td>
</tr>
<tr>
<td>Tephrosia brachyodon</td>
<td>Forb</td>
<td></td>
<td>4/3</td>
</tr>
<tr>
<td>Terminalia microcarpa</td>
<td>Tree</td>
<td></td>
<td>4/6</td>
</tr>
<tr>
<td>Terminalia platyphylla</td>
<td>Tree</td>
<td></td>
<td>4/4, 4/5, 4/6</td>
</tr>
<tr>
<td>Timonius timon</td>
<td>Tree</td>
<td></td>
<td>4/6</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
Collah Waterhole on Fish River just above Site 4/4

Site 4/4 on Fish River downstream of Collah Waterhole
10.5 Bamboo (Moon Boon) Creek

Sub-section 5 includes the catchment of Bamboo (Moon Boon) Creek. Two sites were fully assessed in this sub-section (refer Table 10.15 and Map 34).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Bamboo (Moon Boon) Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bamboo (Moon Boon) Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View along reach at Site 5/3 on Bamboo (Moon Boon) Creek.
Figure 10.58  Cross-section Surveys for Site 5/2 – Bamboo (Moon Boon) Creek
Figure 10.59  Cross-section Surveys for Site 5/3 – Bamboo (Moon Boon) Creek
Table 10.16  Major Vegetation Species Recorded at Site 2 on Bamboo (Moon Boon) Creek located within Sub-section 5

<table>
<thead>
<tr>
<th>Plant Name – <em>Genus species</em></th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia auriculiformis</em></td>
<td>Tree</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Arundinella nepalensis</em></td>
<td>Grass</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Dodonaea platyptera</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Flacourtia territorialis</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Hyptis suaveolens</em></td>
<td>Forb</td>
<td>E/N</td>
<td>5/2</td>
</tr>
<tr>
<td><em>Ixora klanderana</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Litsea glutinosa</em></td>
<td>Tree</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Micromelum minutum</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Pandanus spiralis</em></td>
<td>Tree</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td><em>Terminalia platyphylla</em></td>
<td>Tree</td>
<td></td>
<td>5/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

View along reach at Site 5/2 on Bamboo (Moon Boon) Creek
Green Ant Creek

Sub-section 6 includes the catchment of Green Ant Creek. Of the 5 sites located in this sub-section, 4 of these were fully assessed (refer Table 10.17 and Map 35).

Table 10.17  Summary of Survey Information for Sub-section 6 – Green Ant Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green Ant Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Green Ant Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Green Ant Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Green Ant Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Station Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

View upstream along reach at Site 6/3 on Green Ant Creek
Figure 10.61 Cross-section Surveys for Site 6/1 – Green Ant Creek
Figure 10.62  Cross-section Surveys for Site 6/2 – Green Ant Creek
Figure 10.63  Cross-section Surveys for Site 6/3 – Green Ant Creek
Figure 10.64  Cross-section Surveys for Site 6/4 – Green Ant Creek
CROSS-SECTION A - A
showing typical riverine vegetation

SITE PLAN OF BELT TRANSECT
showing location of vegetation (excluding ground covers)

NOTES
1. The drawings are for diagrammatic purposes to show location of a typical cross-section through the riverine vegetation.
2. Cross-section A - A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through quadrat sampling, are located in the project's database.

OTHER SPECIES LOCATED AT SITE:
- Cypselus conicus (Cyperus) or Cypselus javanicus
- Arundo lenticula
- Ficus elastica
- Eucalyptus tereticornis
- Marsdenia corymbosa
- Rhus malayanus
-Terminalia macrocarpa

Exotic species:

<table>
<thead>
<tr>
<th>TREE ID No.</th>
<th>HEIGHT RANGE (m)</th>
<th>GENUS SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>Metrosideros argentea</td>
</tr>
<tr>
<td>2, 22</td>
<td>10 - 18</td>
<td>Acacia auriculiformis</td>
</tr>
<tr>
<td>3, 8</td>
<td>2.5 - 7</td>
<td>Pandanus australis</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>Bambusa arundinacea</td>
</tr>
<tr>
<td>12 - 21</td>
<td>4 - 8</td>
<td>Syzygium lutea</td>
</tr>
<tr>
<td>23</td>
<td>9</td>
<td>Paspalum notatum</td>
</tr>
</tbody>
</table>

The drawings are for diagrammatic purposes to show location of a typical cross-section through the riverine vegetation.
Table 10.18  Major Vegetation Species Recorded at Site 5 on Station Creek located within Sub-section 6 – Green Ant Creek

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Bambusa arnhemica</td>
<td>Grass (Bamboo)</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Eleocharis geniculata</td>
<td>Forb</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>6/5</td>
</tr>
<tr>
<td>Terminalia erythrocarpa</td>
<td>Tree</td>
<td></td>
<td>6/5</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Barringtonia acutangula
View along reach on Green Ant Creek (Site 6/2)

View along reach at Site 6/1 on Green Ant Creek near the junction with Daly River
10.7 Douglas River

10.7.1 Douglas River

Sub-section 7 encompasses the Douglas River, excluding the catchment area of Hayes and Middle Creeks. Of the 9 sites located in this sub-section, 7 were fully assessed (refer Table 10.19 and Map 36).

Table 10.19 Summary of Survey Information for Sub-section 7 – Douglas River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Douglas River</td>
<td>A</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Douglas River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Douglas River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Douglas River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Douglas River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>7</td>
<td>Douglas River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Depot Creek</td>
<td>A</td>
<td>Glide</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Douglas River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>10</td>
<td>Daly River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Waterfall</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cascades on lower Douglas River

View along reach at Site 7/1 on Douglas River
Figure 10.69  Cross-section Surveys for Site 7/1 – Douglas River
Figure 10.70 Cross-section Surveys for Site 7/2 – Douglas River
Figure 10.71  Cross-section Surveys for Site 7/4 – Douglas River
Figure 10.72  Cross-section Surveys for Site 7/5 – Douglas River
Figure 10.73  Cross-section Surveys for Site 7/8 – Depot Creek
Figure 10.74  Cross-section Surveys for Site 7/10 – Douglas River
Table 10.20  Major Vegetation Species Recorded at Sites 2, 6, 7, 8 and 10 located within Sub-section 7 – Douglas River

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>7/2, 7/7</td>
</tr>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/6, 7/8</td>
</tr>
<tr>
<td>Allophylus cobbe</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Alphitonia excelsa</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/7, 7/10</td>
</tr>
<tr>
<td>Ampelopteris prolifera</td>
<td>Fern</td>
<td></td>
<td>7/2, 7/10</td>
</tr>
<tr>
<td>Bambusa arnhemica</td>
<td>Grass (Bamboo)</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Bridelia tomentosa</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/8</td>
</tr>
<tr>
<td>Calytrix brownii</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Canarium australianum</td>
<td>Tree</td>
<td></td>
<td>7/8, 7/10</td>
</tr>
<tr>
<td>Canthium schultzii</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Carallia brachiata</td>
<td>Tree</td>
<td></td>
<td>7/2, 7/10</td>
</tr>
<tr>
<td>Cupaniopsis anacardioides</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Cynodon radiatus</td>
<td>Grass</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Cyperus holoschoenus</td>
<td>Forb</td>
<td></td>
<td>7/7</td>
</tr>
<tr>
<td>Eleocharis geniculata</td>
<td>Forb</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Erythrophleum chlorostachys</td>
<td>Tree</td>
<td></td>
<td>7/7</td>
</tr>
<tr>
<td>Eucalyptus papuana</td>
<td>Tree</td>
<td></td>
<td>7/2, 7/8, 7/10</td>
</tr>
<tr>
<td>Eucalyptus ptychocarpa</td>
<td>Tree</td>
<td></td>
<td>7/7</td>
</tr>
<tr>
<td>Ficus hispida</td>
<td>Tree</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Ficus platypoda</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Ficus scobina</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Ficus virens</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Flacourtia territorialis</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Flagellaria indica</td>
<td>Vine</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Glochidion xerocarpum</td>
<td>Tree</td>
<td></td>
<td>7/8</td>
</tr>
<tr>
<td>Grevillea pteridifolia</td>
<td>Tree</td>
<td></td>
<td>7/7</td>
</tr>
<tr>
<td>Grewia breviflora</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb E/N</td>
<td></td>
<td>7/2, 7/7</td>
</tr>
<tr>
<td>Ixora klanderana</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Litsea glutinosa</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>7/8</td>
</tr>
<tr>
<td>Maranthes corymbosa</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Continued ……..
<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>7/2, 7/7, 7/8, 7/10</td>
</tr>
<tr>
<td>Melaleuca sp.</td>
<td>Tree</td>
<td></td>
<td>7/6</td>
</tr>
<tr>
<td>Melaleuca viridiflora</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/8</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>7/2, 7/6, 7/10</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>7/2, 7/6, 7/8, 7/10</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>7/7</td>
</tr>
<tr>
<td>Panicum trichoides</td>
<td>Grass</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>7/8, 7/10</td>
</tr>
<tr>
<td>Pennisetum polystachion</td>
<td>Grass</td>
<td>E/N</td>
<td>7/10</td>
</tr>
<tr>
<td>Petalostigma pubescens</td>
<td>Tree</td>
<td></td>
<td>7/8</td>
</tr>
<tr>
<td>Polyalthia australis</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Pongamia pinnata</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Schoenoplectus litoralis</td>
<td>Forb</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Scleria lingulata or levis</td>
<td>Forb</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Sida acuta</td>
<td>Forb</td>
<td>E/N</td>
<td>7/2</td>
</tr>
<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Syzygium angopheroides</td>
<td>Tree</td>
<td></td>
<td>7/10</td>
</tr>
<tr>
<td>Syzygium eucalyptoides</td>
<td>Low tree / shrub</td>
<td></td>
<td>7/7</td>
</tr>
<tr>
<td>Terminalia macrocarpa</td>
<td>Tree</td>
<td></td>
<td>7/2</td>
</tr>
<tr>
<td>Wedelia cunninghamii</td>
<td>Forb</td>
<td></td>
<td>7/10</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

![Ficus virens](image)
View along Douglas River upstream of Site 7/2

Melaleucas at a riffle on Douglas River at Site 7/4

View across large pool to waterfall and gorge within Butterfly Gorge Nature Park (Site 7/10)

Waterfall in Butterfly Gorge Nature Park (Site 7/10)

Upper Douglas River at Site 7/7

An eroding section of Depot Creek at Site 7/8
10.7.2 **Hayes Creek**

Sub-section 8 includes the catchment area of Hayes Creek. Two sites were fully assessed within this sub-section (refer Table 10.21 and Map 37).

**Table 10.21  Summary of Survey Information for Sub-section 8 – Hayes Creek**

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Hayes Creek</td>
<td>A</td>
<td>Glide</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Hayes Creek</td>
<td>A</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Glide</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*View along reach at Site 8/2 on Hayes Creek*

*View along reach at Site 8/4 on upper Hayes Creek*
Area - 535 km²

LEGEND
- Site
- Sample Point
- Vegetation Profile
- Longitudinal Profile Survey
- River
- Creek
- Flow direction

HAYES CREEK
SUB-SECTION 8

Map 37
Figure 10.78  Cross-section Surveys for Site 8/2 – Hayes Creek
Figure 10.79  Cross-section Surveys for Site 8/4 – Hayes Creek
**LEGEND**
- WE: Water Edge
- WS: Water Surface
- WM: Water Mark
- UB: Upper Bank
- UBH: Upper Bank Height
- UBW: Upper Bank Width
- Tree: Individual Tree
- V: Clump of Trees
- V: Vine

**CROSS SECTION A - A**
showing typical riverine vegetation

**HORIZONTAL SCALE 1:50**

**SITE PLAN OF BELT TRANSECT**
showing location of vegetation
(excluding ground covers)

**OTHER SPECIES LOCATED AT SITE:**
- *Fate*:
  - *Genus*: *Bambusa arundinacea*
  - *Shade Tree*:
    - *Genus*: *Eucalyptus nitens*
    - *Ferns*:
      - *Genus*: *Acacia auriculiformis*
      - *Genus*: *Eucalyptus arborescens*
      - *Genus*: *Melaleuca argyrophylla*
      - *Genus*: *Melaleuca toosendiana*
      - *Genus*: *Neosinicia ornithostoma*
      - *Genus*: *Syzygium subspicatum*
  - *Vines*:
    - *Genus*: *Passiflora foetida*
- *Endemic species*

**NOTES**
1. The drawings are for diagrammatic purposes to show vegetation and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through aerial sampling, are located in the project's database.

**TOP END WATERWAYS PROJECT**
**DALY RIVER CATCHMENT**

**RIVERINE VEGETATION PROFILE**

**HAYES CREEK**
**Date**: 20.7.95
**Sub-section**: 8 Site: 2 **Figure**: 10.80
CROSS-SECTION A-A showing typical riverine vegetation

SITE PLAN OF BELT TRANSECT
showing location of vegetation (excluding ground covers)
10.7.3  Middle Creek

Sub-section 9 includes the catchment area of Middle Creek. Two sites were fully assessed within this sub-section (refer Table 10.22 and Map 38).

Table 10.22  Summary of Survey Information for Sub-section 9 – Middle Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Middle Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Middle Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach at Site 9/1 on Middle Creek

Reach at Site 9/2 on Middle Creek
Area - 313 km²
Figure 10.82 Cross-section Surveys for Site 9/1 – Middle Creek
Figure 10.83  Cross-section Surveys for Site 9/2 – Middle Creek
Table 10.23  Major Vegetation Species Recorded at Sites 1 and 2 on Middle Creek located within Sub-section 9

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia auriculiformis</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Aristida latifolia</td>
<td>Grass</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Bambusa arnhemica</td>
<td>Grass (Bamboo)</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Bothriochloa bladhii</td>
<td>Grass</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Brachychiton diversifolius</td>
<td>Tree</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Canarium australianum</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Carallia brachiata</td>
<td>Tree</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Denhamia obscura</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Eucalyptus confertiflora</td>
<td>Tree</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Eucalyptus papuana</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Exocarpos latifolius</td>
<td>Low tree / shrub</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Flacourtia territorialis</td>
<td>Low tree / shrub</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Heteropogon contortus</td>
<td>Grass</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Hibiscus meraukensis</td>
<td>Forb</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Ixora klanderana</td>
<td>Low tree / shrub</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Litsea glutinosa</td>
<td>Tree</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Maranthes corymbosa</td>
<td>Tree</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Melaleuca leucaedendra</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Paspalidium distans</td>
<td>Grass</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>9/1</td>
</tr>
<tr>
<td>Sida acuta</td>
<td>Forb</td>
<td>E/N</td>
<td>9/1</td>
</tr>
<tr>
<td>Syzygium eucalyptoides</td>
<td>Low tree / shrub</td>
<td></td>
<td>9/2</td>
</tr>
<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
<td></td>
<td>9/1, 9/2</td>
</tr>
<tr>
<td>Terminalia erythrocarpa</td>
<td>Tree</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Terminalia macrocarpa</td>
<td>Tree</td>
<td></td>
<td>9/1</td>
</tr>
<tr>
<td>Terminalia platyphylla</td>
<td>Tree</td>
<td></td>
<td>9/1</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
Nauclea orientalis (Leichardt Tree) fruit

Ficus coronulata fruit

Nauclea orientalis on Stray Creek

Ficus racemosa

Ficus coronulata on Stray Creek
10.8 Stray Creek

Sub-section 10 includes the catchment area of Stray Creek. Three sites were fully assessed within this sub-section (refer Table 10.24 and Map 39).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stray Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Stray Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unnamed Creek (Arm of Stray Creek)</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach on lower Stray Creek at Site 10/1

Reach on upper Stray Creek at Site 10/3

Riparian vegetation along Stray Creek (Site 10/3)
Figure 10.84  Cross-section Surveys for Site 10/1 – Stray Creek
Figure 10.85  Cross-section Surveys for Site 10/3 – Stray Creek
Figure 10.86  Cross-section Survey for Site 10/4 – Unnamed Creek (Arm of Stray Creek)

View along reach at Site 10/4 on a tributary of Stray Creek, upstream of Umbrawarra Gorge
LEGEND

WE  Water Edge
WS  Water Surface
WM  Water Mark
UB  Upper Bank
UBH  Upper Bank Height
UBW  Upper Bank Width
° Individual Tree
□ Clump of Trees
V Vine

CROSS-SECTION A - A
showing typical riverine vegetation
HORIZONTAL SCALE 1:200
0 10m

SITE PLAN OF BELT TRAJECT
showing location of vegetation (excluding ground covers)

OTHER SPECIES LOCATED AT SITE:
Grasses:
Cyperus decumbens

Tree/Shrub:
Acacia hirtula
Δ Pachybaum
Exocarpos papuanus
Eugenia grandiflora

NOTES:
1. The drawings are for diagrammatic purposes to show
   location of a typical cross-section through the
   riverine vegetation.
2. Cross-section A - A includes all vegetation above the
   line marked through the belt transect.
3. The vegetation profile (belt transect) is located at
   right angles to the water's edge and extends to the
   upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile
   and ground cover identified through overall
   sampling are located in the project's database.

TOP END WATERWAYS PROJECT
DAILY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE
STRAY CREEK
Sub-section 19 Site 1
Date 7.7.96
Figure 10.87
SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

CROSS-SECTION A-A
showing typical riverine vegetation

VERTICAL HEIGHT
(10m to scale)

0 2.5m

HUD 1.4m
UBH 2m

WE WE
2m

NOTES
1. The drawings are for diagrammatic purposes to show
   location of and a typical cross-section through the
   riverine vegetation.
2. Cross-section A-A includes all vegetation above the
   line marked through the belt transect.
3. The vegetation profile (belt transect) is located at
   right angles to the water's edge and extends to the
   upper bank on edge of riverine vegetation.
4. Measurements for each tree located in the profile,
   and ground covers identified through overall
   sampling, are located in the project's database.

OTHER SPECIES LOCATED AT SITE:

Ferns: Cyathea coarctata
Garcinia bancroftii
Trithrinax sp.

Grasses: Acrostichum aureum
Panicum miliaceum

Trees/Shrubs: Acacia horridiflora
Callitris sp.
Napieria terminalis

Trees: Eucalyptus pauciflora
Eucalyptus sideroxylon
Fuscos corringoensis
Gracillaria pseudostigmatic
Melaleuca argyrophylla
Nectandra straminea
Witchetty shrub
Winter's creeper

Vines: *Platypodium lanceolatum
Weeds: *Hygrophila triquetra

*Evanescent species

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
* Individual Tree
\ Clump of Trees
\ Vine

TREE
ID No.  HEIGHT RANGE  GENUS SPECIES
1 18  Lophostemon grandiflorus
2 4  Syzygium eucalyptoides
3 10  4-5  Eucalyptus grandis
4, 5, 6, 8, 12, 16  12-13  Eucalyptus grandis
7 0  Casuarina australis
9 3  Ficus racemosa
10 15  4-5  Danania obcursa
13, 14  15  Buddleja torreana
15, 17  5.5-7  Pandanus spiralis

RIVERINE VEGETATION PROFILE
Stray Creek
Sub-section 10 Site 3
Date 13.11.96
Fig 10.08
Table 10.25  Major Vegetation Species Recorded at Site 4 located within Sub-section 10 – Stray Creek

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia difficilis</td>
<td>Low tree / shrub</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Alphitonia excelsa</td>
<td>Low tree / shrub</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Antidesma ghaesembilla</td>
<td>Low tree / shrub</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Ficus coronulata</td>
<td>Tree</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Grevillea pteridifolia</td>
<td>Tree</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>10/4</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Melaleuca viridiflora</td>
<td>Low tree / shrub</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>10/4</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>10/4</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

---

*Ficus scobina*
10.9 Bradshaw Creek

Sub-section 11 includes the catchment area of Bradshaw Creek. Of the two sites located in this sub-section, one site was fully assessed (refer Table 10.26 and Map 40).

Table 10.26 Summary of Survey Information for Sub-section 11 – Bradshaw Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Bradshaw Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bradshaw Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>
Figure 10.89 Cross-section Surveys for Site 11/2 – Bradshaw Creek
### Table 10.27  Major Vegetation Species Recorded at Sites 2 and 3 on Bradshaw Creek located within Sub-section 11

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Coldenia procumbens</td>
<td>Forb</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Eriachne festuacea</td>
<td>Grass</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Ficus racemosa</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Heteropogon contortus</td>
<td>Grass</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb E/N</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Melaleuca dealbata</td>
<td>Tree</td>
<td></td>
<td>11/3</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>11/3</td>
</tr>
<tr>
<td>Sesbania formosa</td>
<td>Tree</td>
<td></td>
<td>11/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
10.10 Dead Horse Creek

Sub-section 12 includes the catchment area of Stray Creek. Two sites were fully assessed within this subsection (refer Table 10.28 and Map 41).

Table 10.28 Summary of Survey Information for Sub-section 12 – Dead Horse Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dead Horse Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Rifle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dead Horse Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Log jam and bank erosion along Dead Horse Ck (Site 12/1)
Reach at Site 12/2 on upper Dead Horse Creek
Casuarina cunninghamiana along Dead Horse Ck
DEAD HORSE CREEK
SUB-SECTION 12

LEGEND
- Site
- Sample Point
- Vegetation Profile
- Longitudinal Profile Survey
- River
- Creek
- Flow direction

LOCATION OF SUB-SECTION

Area - 278 km²
Figure 10.90  Cross-section Surveys for Site 12/1 – Dead Horse Creek
Figure 10.91  Cross-section Surveys for Site 12/2 – Dead Horse Creek

DEAD HORSE CREEK - SITE 12/2 (21.9.95)
CROSS-SECTION A  -  RIFFLE

DEAD HORSE CREEK - SITE 12/2 (21.9.95)
CROSS-SECTION B  -  POOL

Note: Bed Dry at Sampling Time

Rock outcrops: Bed, left lower & upper banks

Rock outcrops: Left lower bank

Top End Waterways Project
Daly River Catchment
Table 10.29 Major Vegetation Species Recorded at Site 2 on Dead Horse Creek located within Sub-section 12

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia difficilis</td>
<td>Low tree / shrub</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Cyperus holoschoenus</td>
<td>Forb</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Eragrostis cumingii</td>
<td>Grass</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Eucalyptus patellarii</td>
<td>Tree</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Eucalyptus polycarpa</td>
<td>Tree</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Grevillea pteridifolia</td>
<td>Tree</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Nelsonia campestris</td>
<td>Forb</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Petalostigma banksii</td>
<td>Tree</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Plectranthus scutellarioides</td>
<td>Forb</td>
<td></td>
<td>12/2</td>
</tr>
<tr>
<td>Trachymene rotundifolia</td>
<td>Forb</td>
<td></td>
<td>12/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Acacia holosericea
10.11 Fergusson River

10.11.1 Fergusson River – Below Edith River

Sub-section 13a encompasses the Fergusson River, downstream of the junction with Edith River. Two sites were fully assessed in this sub-section (refer Table 10.30 and Map 42).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fergusson River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fergusson River</td>
<td>A</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 10.93 Cross-section Surveys for Site 13a/1 – Fergusson River
Figure 10.94 Cross-section Survey for Site 13a/2 – Fergusson River
CROSS-SECTION A - A
showing typical riverine vegetation
HORIZONTAL SCALE 1:200

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

NOTE:
1. The drawings are for diagrammatic purposes to show
location of and a typical cross-section through the
riverine vegetation.
2. Cross-section A - A includes all vegetation above the
tie marked through the belt transect.
3. The vegetation profile (belt transect) is located at
right-angles to the water's edge and extends to the
upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile,
and ground covers identified through quasi
sampling, are located in the project's database.

RIVERINE VEGETATION PROFILE
PERGUSION RIVER

Date 30.9.96
Sub-section 13A Site 2
Figure 10.96
Table 10.31  Major Vegetation Species Recorded at Site 1 on Fergusson River located within Sub-section 13a

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Barringtonia acutangula</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Casuarina cunninghamiana</em></td>
<td>Tree</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Chara sp.</em></td>
<td>Forb</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Coldenia procumbens</em></td>
<td>Forb</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Cynodon dactylon</em></td>
<td>Grass</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Dentella repens</em></td>
<td>Forb</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Melaleuca leucadendra</em></td>
<td>Tree</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Nauclea orientalis</em></td>
<td>Tree</td>
<td></td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Vine</td>
<td>E</td>
<td>13a/1</td>
</tr>
<tr>
<td><em>Xanthium occidentale</em></td>
<td>Forb</td>
<td>E/N</td>
<td>13a/1</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Vegetation along Fergusson River at Site 13a/2 showing area where vegetation profile completed
10.11.2 Fergusson River – Above Edith River

Sub-section 13b encompasses the Fergusson River, upstream of the junction with Edith River (excluding Edith River, Eight Mile Creek and Cullen River catchment areas). Two sites were fully assessed in this sub-section (refer Table 10.32 and Map 43).

Table 10.32 Summary of Survey Information for Sub-section 13b – Fergusson River Above Edith River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fergusson River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fergusson River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View of pool at Site 13b/1 on Fergusson River

A small waterfall on Fergusson River above Site 13b/3

View of rapid at Site 13b/3 on Fergusson River

View of pool at Site 13b/3 on Fergusson River
Figure 10.96  Cross-section Surveys for Site 13b/1 – Fergusson River
Figure 10.97  Cross-section Surveys for Site 13b/3 – Fergusson River
159 Fergusson River

**DALY RIVER CATCHMENT**

---

**LEGEND**

- **WE**: Water Edge
- **WS**: Water Surface
- **WM**: Water Mark
- **UB**: Upper Bank
- **UBH**: Upper Bank Height
- **UBW**: Upper Bank Width
- **v**: Clump of Trees
- **v**: Vine

---

**TREE ID No.** | **HEIGHT RANGE** (m) | **GENUS SPECIES**
--- | --- | ---
1. 3, 6-10 | 1.3-1.5 | Pandanus aquetus
4 | 1.5 | Caesium schouteri
5 | 4 | Syzygium samarangense sub eucalyptoides
6, 7, 11, 13 | 6-12 | Melaleuca cajanderi
12 | 2.5 | Pteleus rouluculosus
14, 16 | 5 | Ficus coromanda
17 | 8 | Eucalyptus camaldolensis

---

**OTHER SPECIES LOCATED AT SITE:**

- **Folio**: Diuris papillosa
- **Melochia coronaria**
- **Acacia mearnsii**
- **Acacia nilotica**
- **Melaleuca neriifolia**
- **Lophostemon grandiflorus**
- **Vines**: *Passiflora foetida*
- **Weeds**: *Ipomoea purpurea* (Invasive)

**NOTES**

1. The drawings are for diagrammatic purposes to show location of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A indicates all vegetation above the line marked through the transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and groundcovers identified through aerial sampling, are located in the project's database.

---

**TOP END WATERWAYS PROJECT**

**DALY RIVER CATCHMENT**

**RIVERINE VEGETATION PROFILE**

**FERGUSSON RIVER**

*Date*: 10.8.96

*Sub-section*: 13B

*Site*: 3

*Figure*: 10.94
### Table 10.33 Major Vegetation Species Recorded at Site 1 on Fergusson River located within Sub-section 13b

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia auriculiformis</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Antidesma ghaesembilla</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Barringtonia acutangula</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Calytrix brownii</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Carallia brachiata</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Diospyros calycantha</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Diospyros compacta</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Eleocharis geniculata</em></td>
<td>Forb</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Ficus coronulata</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Flacourtia territorialis</em></td>
<td>Small tree / shrub</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Flagellaria indica</em></td>
<td>Vine</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Germainia truncatiglumis</em></td>
<td>Grass</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Lophostemon grandiflorus</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Melaleuca leucadendra</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Nauclea orientalis</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Pandanus aquaticus</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Vine E</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Phragmites karka</em></td>
<td>Grass</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Phyllanthus reticulatus</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Planchonia careya</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
<tr>
<td><em>Strychnos lucida</em></td>
<td>Tree</td>
<td></td>
<td>13b/1</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
10.11.3 Edith River

Sub-section 14 includes the catchment of Edith River. Of the 4 sites located within this sub-section, 3 sites were fully assessed (refer Table 10.34 and Map 44).

Table 10.34 Summary of Survey Information for Sub-section 14 – Edith River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Edith River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Edith River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Edith River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Granite Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach along lower Edith River at Site 14/2

A riffle and pool at Site 14/2 on Edith River

Edith River at Site 14/3 (at Gauge Station 8140152)

View across riffle on Edith River at Site 14/3
EDITH RIVER - SITE 14/2 (17.5.96)
CROSS-SECTION A - RIFFLE

- High Bank
- Water Mark
- Water Level

Bank Height (m)

Water Mark Level

Depth (m)

Distance (m)

Rock outcrops: None

EDITH RIVER - SITE 14/2 (17.5.96)
CROSS-SECTION B - POOL

- High Bank
- Water Mark
- Water Level

Bank Height (m)

Water Mark Level

Depth (m)

Distance (m)

Rock outcrops: None

Figure 10.99  Cross-section Surveys for Site 14/2 – Edith River
Figure 10.100  Cross-section Surveys for Site 14/3 – Edith River
Figure 10.101  Cross-section Survey for Site 14/4 – Edith River

View along pool at Site 14/4 on Edith River, downstream of Edith Falls.
<table>
<thead>
<tr>
<th>Plant Name – <em>Genus species</em></th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia dimidiata</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/6</td>
</tr>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/3, 14/4</td>
</tr>
<tr>
<td><em>Antidesma ghaesembilla</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/4</td>
</tr>
<tr>
<td><em>Calytrix brownii</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Canthium schultzii</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/4</td>
</tr>
<tr>
<td><em>Cyperus conicus</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Cyperus haspan</em></td>
<td>Forb</td>
<td></td>
<td>14/3, 14/4</td>
</tr>
<tr>
<td><em>Dichanthium fecundum</em></td>
<td>Grass</td>
<td></td>
<td>14/6</td>
</tr>
<tr>
<td><em>Epaltes australis</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Eragrostis cumingii</em></td>
<td>Grass</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Eucalyptus polycarpa</em></td>
<td>Tree</td>
<td></td>
<td>14/4</td>
</tr>
<tr>
<td><em>Eulalia aurea</em></td>
<td>Grass</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Ficus coronulata</em></td>
<td>Tree</td>
<td></td>
<td>14/3, 14/4</td>
</tr>
<tr>
<td><em>Fimbristylis pauciflora</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Germainia truncatiglumis</em></td>
<td>Grass</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Glinus oppositifolius</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Goodenia purpurascens</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Grevillea pteridifolia</em></td>
<td>Tree</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Hakea arborescens</em></td>
<td>Tree</td>
<td></td>
<td>14/6</td>
</tr>
<tr>
<td><em>Heteropogon contortus</em></td>
<td>Grass</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Hyptis suaveolens</em></td>
<td>Forb</td>
<td>E/N</td>
<td>14/3</td>
</tr>
<tr>
<td><em>Lipocarpa microcephala</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Lophostemon grandiflorus</em></td>
<td>Tree</td>
<td></td>
<td>14/3, 14/6</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Melaleuca leucadendra</em></td>
<td>Tree</td>
<td></td>
<td>14/4</td>
</tr>
<tr>
<td><em>Melaleuca nervosa</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/6</td>
</tr>
<tr>
<td><em>Pandanus aquaticus</em></td>
<td>Tree</td>
<td></td>
<td>14/3, 14/4</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Vine</td>
<td>E</td>
<td>14/3, 14/4</td>
</tr>
<tr>
<td><em>Phyllanthus reticulatus</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Stemodia lythrophylla</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Tephrosia brachyodon</em></td>
<td>Forb</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Terminalia platypylla</em></td>
<td>Tree</td>
<td></td>
<td>14/6</td>
</tr>
<tr>
<td><em>Vitex glabrata</em></td>
<td>Tree</td>
<td></td>
<td>14/3</td>
</tr>
<tr>
<td><em>Waltheria indica</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>14/4</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
Lophostemon grandiflorus
10.11.4 Eight Mile Creek

Sub-section 15 includes the catchment of Eight Mile Creek. One site was fully assessed within this sub-section (refer Table 10.36 and Map 45).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Eight Mile Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Riffle on Eight Mile Creek at Site 15/2
Figure 10.103  Cross-section Surveys for Site 15/2 – Eight Mile Creek
### Table 10.37 Major Vegetation Species Recorded at Site 2 on Eight Mile Creek located within Sub-section 15

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Arundinella nepalensis</td>
<td>Grass</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Bridelia tomentosa</td>
<td>Low tree / shrub</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Cyperus viscidulus</td>
<td>Forb</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Eragrostis spartinoideae</td>
<td>Grass</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Ficus coronulata</td>
<td>Tree</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>15/2</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Melinis repens</td>
<td>Grass</td>
<td>E</td>
<td>15/2</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Vine</td>
<td>E</td>
<td>15/2</td>
</tr>
<tr>
<td>Pennisetum polystachion</td>
<td>Grass</td>
<td>E/N</td>
<td>15/2</td>
</tr>
<tr>
<td>Strychnos lucida</td>
<td>Tree</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Terminalia platyphylla</td>
<td>Tree</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>Waltheria indica</td>
<td>Low tree / shrub</td>
<td></td>
<td>15/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Riparian vegetation along Eight Mile Creek (Site 15/2)

---

**Top End Waterways Project**

**DALY RIVER CATCHMENT**
10.11.5 Cullen River and Copperfield Creek

Sub-section 16 includes the catchment of Cullen River. Three sites were fully assessed within this sub-section (refer Table 10.38 and Map 46). The sites were located on the Cullen River (1) and its tributary, Copperfield Creek (2).

Table 10.38 Summary of Survey Information for Sub-section 16 – Cullen River and Copperfield Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cullen River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Copperfield Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Copperfield Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>
Figure 10.104  Cross-section Surveys for Site 16/1 – Cullen River
**COPPERFIELD CREEK - SITE 16/2 (22.9.95)**

**CROSS-SECTION A - POOL**

- High Bank
- Water Mark
- -- Water Level

*Note: Bed Dry at Sampling Time*

- Rock outcrops: Bed, left lower & right upper banks

**COPPERFIELD CREEK - SITE 16/2 (22.9.95)**

**CROSS-SECTION B - RIFFLE**

- High Bank
- Water Mark
- -- Water Level

*Note: Bed Dry at Sampling Time*

- Rock outcrops: None

Figure 10.105  Cross-section Surveys for Site 16/2 – Copperfield Creek
**CROSS-SECTION A-A**
showing typical riverine vegetation

**SITE PLAN OF BELT TRANSECT**
showing location of vegetation (excluding ground covers)

**OTHER SPECIES LOCATED AT SITE:**

- *Fimbristylis acicularis*
- *Ghousa appressa*
- *Sangrahya replicata*
- *Gypsophila pennata*
- *Dichondra sericea*
- *Fagopyrum exaltatum*
- *Eragrostis spicata*
- *Eragrostis farinacea*
- *Acalypha microspermum*
- *Acalypha exilis*
- *Rhus copallina*
- *Hyparrhenia frigida*
- *Hyparrhenia rufa (Native)*
- Exotic species

**NOTES:**
1. The drawings are for diagrammatic purposes to show position of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through quadrat sampling, are located in the project's database.

---

**TABLE:**

<table>
<thead>
<tr>
<th>TREE ID No.</th>
<th>HEIGHT RANGE (m)</th>
<th>GENUS SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>13-15</td>
<td><em>Metrosideros argentea</em></td>
</tr>
<tr>
<td>6</td>
<td>10.5</td>
<td><em>Terminalia platynota</em></td>
</tr>
<tr>
<td>7, 8</td>
<td>11.1-3</td>
<td><em>Anisodon pheasants</em></td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td><em>Flueggea virosa</em></td>
</tr>
</tbody>
</table>

---

**TOP END WATERWAYS PROJECT**
**DALY RIVER CATCHMENT**

**RIVERINE VEGETATION PROFILE**

**CULLERN RIVER**

Sub-section 16 Site 1 Figure 10.109
<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>16/2, 16/5</td>
</tr>
<tr>
<td><em>Arundinella nepalensis</em></td>
<td>Grass</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Calytrix brownii</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Cyperus viscidulus</em></td>
<td>Forb</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Eragrostis cumingii</em></td>
<td>Grass</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Eucalyptus polycarpa</em></td>
<td>Tree</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Ficus coronulata</em></td>
<td>Tree</td>
<td></td>
<td>16/5</td>
</tr>
<tr>
<td><em>Flueggea virosa</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>16/5</td>
</tr>
<tr>
<td><em>Germainia truncatiglumis</em></td>
<td>Grass</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Grevillea pteridifolia</em></td>
<td>Tree</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Heteropogon triticeus</em></td>
<td>Grass</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Hibiscus meraukensis</em></td>
<td>Forb</td>
<td></td>
<td>16/2</td>
</tr>
<tr>
<td><em>Hyptis suaveolens</em></td>
<td>Forb</td>
<td>E/N</td>
<td>16/2, 16/5</td>
</tr>
<tr>
<td><em>Lophostemon grandiflorus</em></td>
<td>Tree</td>
<td></td>
<td>16/2, 16/5</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>16/2, 16/5</td>
</tr>
<tr>
<td><em>Pandanus aquaticus</em></td>
<td>Tree</td>
<td></td>
<td>16/2, 16/5</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Vine</td>
<td>E</td>
<td>16/2, 16/5</td>
</tr>
<tr>
<td><em>Staurogyne leptocaulis</em></td>
<td>Forb</td>
<td>E</td>
<td>16/2</td>
</tr>
<tr>
<td><em>Terminalia platyphylla</em></td>
<td>Tree</td>
<td></td>
<td>16/2, 16/5</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

---

Riparian vegetation along Cullen River (Site 16/1)  
Collecting vegetation samples for identification
10.12 Flora River

10.12.1 Flora River and Hayward Creek

Sub-section 17 encompasses the Flora River and its tributary, Hayward Creek (excluding Mathison Creek catchment area). Five sites were fully assessed in this sub-section. One of these sites is located on Hayward Creek, whilst the remaining sites are on Flora River (refer Table 10.40 and Map 47).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flora River</td>
<td>A</td>
<td>Cascade</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Flora River</td>
<td>A</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Waterfall</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Flora River</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Flora River</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Hayward Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tufa cascade on lower Flora River
FLORA RIVER & HAYWARD CREEK
SUB-SECTION 17

Area - 2,946 km²

LEGEND
- Site
- Sample Point
(VP) Vegetation Profile
- Longitudinal Profile Survey
  - River
  - Creek
  - Flow direction

LOCATION OF SUB-SECTION

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT

Map 47
Figure 10.107  Cross-section Surveys for Site 17/1 – Flora River
Figure 10.108 Cross-section Surveys for Site 17/2 – Flora River
Figure 10.109  Cross-section Surveys for Site 17/5 – Flora River
Figure 10.110 Cross-section surveys for Site 17/6 – Flora River
Figure 10.111 Cross-section Surveys for Site 17/8 – Hayward Creek
Site Plan of Belt Transect

Showing location of vegetation (excluding ground covers)

Top End Waterways Project
Daly River Catchment

Legend:
- WE Water Edge
- WS Water Surface
- WM Water Mark
- UB Upper Bank
- UBH Upper Bank Height
- UBW Upper Bank Width

- Individual Tree
- Chump of Trees
- Vine

CROSS-SECTION A-A

Showing typical riverine vegetation

Horizontal Scale 1:100

VERITCAL HEIGHT

Not to scale

SITE PLAN OF BELT TRANCECT

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT

RIVERINE VEGETATION PROFILE

Flora River

Sub-section 17 Site 1

Figure 10.112

Tree No. | Height Range (m) | Genus Species
--- | --- | ---
1 | 15 | Melaleuca argentea
2 | 15 | Pandanus flavus
2-16 | 1-6 | Pandanus dactyloides
17-20 | 14 | Ficus racemosa
20-20 | 1-6 | Neurocarya orientalis
21-23 | 1-3-5 | Lantana rigida
23-24 | 1-3-5 | Barringtonia acutangula
25-26, 28-30 | 1-3-5 | Grevia breviflora
31 | 14 | Terminalia parviflora
32-32 | 23 | Eucalyptus camaldulensis

Other Species Located at Site:

Fruit:
- Aciphylla australis
- Myriophyllum sp. (aquatic)
- Melaleuca camporum
- Nymphaea sp. (aquatic)
- Schoenoplectus albus

Grass:
- Anadenanthera peregrina
- Brachiaria ramosa
- Paspalum rugosum
- Paspalum tenuis

Tree/Shrub:
- Acacia holosericea
- Cachuma umbellata
- Dendrolae polyphylla
- Ficus robusta

Trees:
- Casuarina cunninghamiana
- Lophira leucomela
- Serissa frutescens
- Terminalia arborecta

Vegetation:
- Ficus ovata
- Luffa cayennensis
- Yeasallora fenestra

Forest:
- Stylo carnosus (Tropical)
- *Site acute* (Tropical)

Notes:
1. The drawings are for diagrammatic purposes to show
   vegetation and typical cross-section through the
   riverine vegetation.
2. Cross-section A-A includes all vegetation above the
   line marked through the belt transect.
3. The vegetation profile belt transect is located at
   right-angles to the water's edge and extends to the
   upper bank or edge of riverine vegetation.
4. Measurement for each tree located in the profile,
   and ground cover species identified through aerial
   sampling, are located in project databases.
Table 10.41 Major Vegetation Species Recorded at Sites 6 and 8 on Flora River and Hayward Creek, respectively, located within Sub-section 17

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Arundinella nepalensis</em></td>
<td>Grass</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Casuarina cunninghamiana</em></td>
<td>Tree</td>
<td></td>
<td>17/8</td>
</tr>
<tr>
<td><em>Chara sp.</em></td>
<td>Forb</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Crotolaria sp.</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Dodonaea platypetra</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Eleocharis geniculata</em></td>
<td>Forb</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Eucalyptus papuana</em></td>
<td>Tree</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Excoecaria parvifolia</em></td>
<td>Tree</td>
<td></td>
<td>17/8</td>
</tr>
<tr>
<td><em>Hyptis suaveolens</em></td>
<td>Forb E/N</td>
<td></td>
<td>17/8</td>
</tr>
<tr>
<td><em>Lophostemon grandiflorus</em></td>
<td>Tree</td>
<td></td>
<td>17/6, 17/8</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>17/8</td>
</tr>
<tr>
<td><em>Melaleuca leucadendra</em></td>
<td>Tree</td>
<td></td>
<td>17/6, 17/8</td>
</tr>
<tr>
<td><em>Nauclea orientalis</em></td>
<td>Tree</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Nelsonia campestris</em></td>
<td>Forb</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Nitella sp.</em></td>
<td>Forb</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Pandanus aquaticus</em></td>
<td>Tree</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Paspalum scrobiculatum</em></td>
<td>Grass</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Vine E</td>
<td></td>
<td>17/6, 17/8</td>
</tr>
<tr>
<td><em>Terminalia platypetra</em></td>
<td>Tree</td>
<td></td>
<td>17/6</td>
</tr>
<tr>
<td><em>Timonius timon</em></td>
<td>Tree</td>
<td></td>
<td>17/6</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
Top End Waterways Project
DALY RIVER CATCHMENT

View along reach on lower Flora River (Site 17/1)

Tufa waterfalls at Kathleen Falls on Flora River

Cascade at Florence Falls on Flora River (Site 17/2)

Reach on upper Flora River at Site 17/5

Riffle on upper Flora River at Site 17/6

Reach on Hayward Creek at Site 17/8
10.12.2 Mathison and Aroona Creeks

Sub-section 18 includes the catchment of Mathison and Aroona Creeks. Three sites were fully assessed in this sub-section (refer Table 10.42 and Map 48).

Table 10.42 Summary of Survey Information for Sub-section 18 – Mathison and Aroona Creeks

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Mathison Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Mathison Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Aroona Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach on Mathison Creek at Site 18.2
Figure 10.115  Cross-section Surveys for Site 18/2 – Mathison Creek
Figure 10.116 Cross-section Surveys for Site 18/3 – Mathison Creek
Figure 10.117  Cross-section Surveys for Site 18/5 – Aroona Creek
Cross-section A-A showing typical riverine vegetation

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
Individual Tree
Clump of Trees
Vine

VERTICAL HEIGHT (not to scale)
10

20 Tree Height (m)

11

14, 15, 19, 31

16

17, 19, 26, 30

27

28

29

TREE ID No. | HEIGHT RANGE (m) | GENUS SPECIES
---|---|---
1, 3, 5, 6 | 1.5-1.64 | Casuarina cunninghamiana
2, 8-13 | 1.3-3 | Acacia georgeana
4, 32 | 1.3-7 | Calophyllum inophyllum
7 | 1.7 | Anisphora horrida
14, 15, 19, 31 | 2.4-3 | Parkinsonia aculeata
16 | 1.6 | Eucalyptus camaldulensis
17, 19, 26, 30 | 1.2-3 | Jacaranda polyantha
27 | 2.5 | Decandia polyphylla
28 | 1.5 | Termitea platyphylla
29 | 1.5 | Eucalyptus microcarpa

OTHER SPECIES LOCATED AT SITE:

Flora: Bancoa sprucei, Melaleuca campsi, Myrtus cataphracta
Grazers: Mammalia ruficolotes, Paspalum dilatatum
Trees: Ficus coronata, Lychea lucida, Melaleuca duseniana
Vines: Phyllisia rosacea
Weeds: Phormium sp.

NOTES:

1. These drawings are for diagrammatic purposes to show the location of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right-angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each line (and line marked throughout) are located on the project's database.

RIVERINE VEGETATION PROFILE

MATTHISON CREEK

Date: 30.09.89
Sub-section: 18 Site: 2 Figure: 10.119
Table 10.43  Major Vegetation Species Recorded at Sites 3 and 5 on Mathison and Aroona Creeks, respectively, located within Sub-section 18

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Aristida pruinosa</em></td>
<td>Grass</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Brachiaria piligera</em></td>
<td>Grass</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Brachyachne convergens</em></td>
<td>Grass</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Calytrix extipulata</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Chrysopogon fallax</em></td>
<td>Grass</td>
<td></td>
<td>18/3, 18/5</td>
</tr>
<tr>
<td><em>Cyperus holoschoenus</em></td>
<td>Forb</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Dodonaea platyptera</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Echinocloa colona</em></td>
<td>Grass</td>
<td>E</td>
<td>18/5</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>18/3, 18/5</td>
</tr>
<tr>
<td><em>Eucalyptus tectifica</em></td>
<td>Tree</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Excoecaria parvifolia</em></td>
<td>Tree</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Fimbristylis littoralis</em></td>
<td>Forb</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Flacourtia territorialis</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Heteropogon contortus</em></td>
<td>Grass</td>
<td></td>
<td>18/3, 18/5</td>
</tr>
<tr>
<td><em>Hyiptis suaveolens</em></td>
<td>Forb</td>
<td>E/N</td>
<td>18/3</td>
</tr>
<tr>
<td><em>Indigofera linifolia</em></td>
<td>Forb</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Jatropha gossypiifolia</em></td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>18/5</td>
</tr>
<tr>
<td><em>Lophostemon grandiflorus</em></td>
<td>Tree</td>
<td></td>
<td>18/3, 18/5</td>
</tr>
<tr>
<td><em>Lysiphylum cunninghamii</em></td>
<td>Tree</td>
<td></td>
<td>18/3, 18/5</td>
</tr>
<tr>
<td><em>Melaleuca leucadendra</em></td>
<td>Tree</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Melaleuca viridiflora</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Mnesithea rottboellioides</em></td>
<td>Grass</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Panicum mindanaense</em></td>
<td>Grass</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Parkinsonia aculeata</em></td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>18/5</td>
</tr>
<tr>
<td><em>Sesbania cannabina</em></td>
<td>Forb</td>
<td></td>
<td>18/5</td>
</tr>
<tr>
<td><em>Strychnos lucida</em></td>
<td>Tree</td>
<td></td>
<td>18/3</td>
</tr>
<tr>
<td><em>Terminalia platypylla</em></td>
<td>Tree</td>
<td></td>
<td>18/3, 18/5</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
View along reach on Mathison Creek at Site 18/3

Reach along Aroona Creek at Site 18/5

Measuring bank height on Mathison Creek (Site 18/2)

An eroding bank along Aroona Creek (Site 18/5)
10.13 Katherine River

10.13.1 Katherine River – Below King River

Sub-section 19a encompasses the Katherine River from the junction with Daly River upstream to King River (excluding the catchment area of Limestone and Scott Creeks). Two sites, located on the Katherine River, were fully assessed in this sub-section (refer Table 10.44 and Map 49).

Table 10.44 Summary of Survey Information for Sub-section 19a – Katherine River Below King River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Katherine River</td>
<td>A</td>
<td>Cascade</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Katherine River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach along Katherine River at Site 19a/3

Riparian vegetation on Katherine River (Site 19a/3)

Old eroded river crossing track on Katherine River
Figure 10.119  Cross-section Survey for Site 19a/2 – Katherine River
Figure 10.120  Cross-section Surveys for Site 19a/3 – Katherine River
203 Katherine River

Top End Waterways Project
DALY RIVER CATCHMENT

Legend:
- WS: Water Surface
- WE: Water Edge
- WM: Water Mark
- UB: Upper Bank
- UBH: Upper Bank Height
- UBW: Upper Bank Width
- *: Individual Tree
- O: Clump of Trees
- V: Vine

Cross-section A-A:
Showing typical riverine vegetation

Height Range (m):
- Tree ID No.: 1, 2
- Height Range: 18
- Genus Species: Metrosideros laevifolia

Tree ID No.: 3, 4, 6, 9
- Height Range: 13-20
- Genus Species: Casuarina cunninghamiana

Tree ID No.: 5
- Height Range: 13
- Genus Species: Neolitsea orientalis

Tree ID No.: 6, 11
- Height Range: 5-9
- Genus Species: Barringtonia acutangula

Tree ID No.: 7
- Height Range: 1.3
- Genus Species: Celartadium umbellatum

Tree ID No.: 10
- Height Range: 5
- Genus Species: Ficus racemosa

Tree ID No.: 12
- Height Range: 17
- Genus Species: Eucalyptus camaldulensis

Site Plan of Belt Transect:
Showing location of vegetation (excluding ground covers)

Notes:
1. The drawings are for diagrammatic purposes to show vegetation of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile for the transect is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile and ground covers identified through quadrat sampling are located in the project's database.

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE
KATHERINE RIVER
Date: 23.4.96
Sub-section: 19A Site: 2 Figure: 10.121
CROSS-SECTION A-A
showing typical riverine vegetation

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)
10.13.2 Katherine River – Below Seventeen Mile Creek

Sub-section 19b encompasses the Katherine River from the junction with King River upstream to Seventeen Mile Creek. This sub-section includes the Katherine Township urban and rural residential areas. Six sites, located on the Katherine River, were fully assessed in this sub-section (refer Table 10.45 and Map 50).

Table 10.45 Summary of Survey Information for Sub-section 19b – Katherine River Below Seventeen Mile Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Katherine River</td>
<td>A</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>2</td>
<td>Katherine River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Katherine River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Katherine River</td>
<td>A</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Katherine River</td>
<td>A</td>
<td>Run</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Katherine River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Katherine River upstream of Stuart Highway Bridge

Old Railway Bridge across Katherine River

Knotts Crossing Weir on Katherine River

Rapids on Katherine River downstream of Katherine
Figure 10.123  Cross-section Survey for Site 19b/1 – Katherine River
Figure 10.124  Cross-section Surveys for Site 19b/2 – Katherine River
**Figure 10.125** Cross-section Surveys for Site 19b/3 – Katherine River
Figure 10.126 Cross-section Surveys for Site 19b/4 – Katherine River
Figure 10.127  Cross-section Surveys for Site 19b/5 – Katherine River
Figure 10.128  Cross-section Surveys for Site 19b/6 – Katherine River
Cross-section A-A showing typical riverine vegetation

Profile Length 50m

Site Plan of Belt Transect showing location of vegetation (excluding ground covers)
217 Katherine River
Top End Waterways Project
DALY RIVER CATCHMENT

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

CROSS-SECTION A - A
showing typical riverine vegetation

VERTICAL HEIGHT (not to scale)

TABLE

<table>
<thead>
<tr>
<th>TREE ID No.</th>
<th>HEIGHT RANGE (m)</th>
<th>GENUS SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5, 21</td>
<td>12-15</td>
<td>Melaleuca leucadendra</td>
</tr>
<tr>
<td>2.6, 8, 22, 23</td>
<td>3-15</td>
<td>L. microcarpa</td>
</tr>
<tr>
<td>25, 26, 32, 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.12-18</td>
<td>1.5-5</td>
<td>Pandanus tectorius</td>
</tr>
<tr>
<td>4.13-21, 29</td>
<td>1.8-7</td>
<td>Barringtonia acutangula</td>
</tr>
<tr>
<td>5.20</td>
<td>2.4-2.5</td>
<td>Cyrtandra acutifolia</td>
</tr>
<tr>
<td>6</td>
<td>1.5</td>
<td>Melaleuca argentea</td>
</tr>
<tr>
<td>16.14-35, 36</td>
<td>4-15</td>
<td>Syzygium torre</td>
</tr>
<tr>
<td>33.34, 35</td>
<td>3.8-6</td>
<td>Antidesma pammelota</td>
</tr>
</tbody>
</table>

OTHER SPECIES LOCATED AT SITE:

Ferns: Achyranthes aspera
Grasses: Hyparrhenia rufa
 Shrubs: H. schoenoplectoides
Trees: Eucalyptus camaldulensis
Vines: Flagellaria indica

NOTES
1. The drawings are for diagrammatic purposes to show variation of typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the transect.
3. The vegetation profile line is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree are given in the profile and groundcovers identified through quadrat sampling are located in the project's database.

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE

KATHERINE RIVER
Sub-section: 10B Site: 6 Figure: 10:133

Date 23.5.96
Table 10.46  Major Vegetation Species Recorded at Site 5 on Katherine River located within Sub-section 19b

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternanthera angustifolia</td>
<td>Forb</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Basilicum polystachyon</td>
<td>Forb</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Canthium schultzii</td>
<td>Low tree / shrub</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Eragrostis tenellula</td>
<td>Grass</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Ficus scobina</td>
<td>Low tree / shrub</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Fimbristylis sp.</td>
<td>Forb</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Flagellaria indica</td>
<td>Vine</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Ludwigia hyssopifolia</td>
<td>Forb</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Paspalidium distans</td>
<td>Grass</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Forb</td>
<td>E</td>
<td>19b/5</td>
</tr>
<tr>
<td>Phyllanthus reticulatus</td>
<td>Low tree / shrub</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Physalis minima</td>
<td>Forb</td>
<td></td>
<td>19b/5</td>
</tr>
<tr>
<td>Syzygium forte</td>
<td>Low tree / shrub</td>
<td></td>
<td>19b/5</td>
</tr>
</tbody>
</table>

*  Declared Noxious Weed within the Northern Territory
10.13.3 Katherine River – Below Grace and Fanny Creeks

Sub-section 19c encompasses the Katherine River from the junction with Seventeen Mile Creek (not including this creek) upstream to Grace Creek junction. This sub-section includes the Katherine Gorge. Two sites, located on the Katherine River, were fully assessed in this sub-section. A photographic site was also located on Emu Creek, a small tributary of the Katherine River (refer Table 10.47 and Map 51).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Katherine River</td>
<td>A Pool</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Rapid</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Emu Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Katherine River</td>
<td>A Riffle</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B Pool</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View upstream along Gorge 2 on Katherine River within Nitmiluk National Park (above Site 19c/3)
Figure 10.134  Cross-section Surveys for Site 19c/1 – Katherine River
Figure 10.135  Cross-section Surveys for Site 19c/3 – Katherine River
**CROSS-SECTION A-A**

**Showing typical riverine vegetation**

**SITE PLAN OF BELT TRANSECT**

**Showing location of vegetation**

(excluding ground covers)

**LEGEND**

- **WE**: Water Edge
- **WS**: Water Surface
- **WM**: Water Mark
- **UB**: Upper Bank
- **UBH**: Upper Bank Height
- **UBW**: Upper Bank Width
  - Individual Tree
  - Clump of Trees
  - Vine

**VERTICAL HEIGHT (not to scale)**

**HORIZONTAL SCALE 1:200**

**SITE PLAN OF BELT TRANSECT**

**Showing location of vegetation**

(excluding ground covers)

**NOTES**

1. The drawings are for diagrammatic purposes to show sensation of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water’s edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through quadrat sampling, are located in the project’s database.

**TRUNK ID NO.**

**HEIGHT RANGE (m)**

**GENUS SPECIES**

<table>
<thead>
<tr>
<th>No.</th>
<th>Trunk ID</th>
<th>Height Range</th>
<th>Genus Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>1, 17, 21</td>
<td>11-16</td>
<td><em>Melaleuca argentea</em> or <em>Melaleuca leucadendra</em></td>
</tr>
<tr>
<td>2</td>
<td>5.5</td>
<td>5-6</td>
<td><em>Pandanus sp.</em></td>
</tr>
<tr>
<td>3, 8</td>
<td>6.25</td>
<td>2.5-8</td>
<td><em>Barringtonia acutangula</em></td>
</tr>
<tr>
<td>23</td>
<td>13</td>
<td></td>
<td><em>Eucalyptus camaldulensis</em></td>
</tr>
<tr>
<td>24</td>
<td>4.5</td>
<td></td>
<td><em>Phyllanthus reticulatus</em></td>
</tr>
</tbody>
</table>

**OTHER SPECIES LOCATED AT SITE:**

- *Oryzae oswaldii*
- *Dentaria repens*
- *Cydonia decipiens*
- *Eucalyptus sideroxylon*
- *Parriniea arcuata*
- *Acacia baileyana*
- *Vitis vinifera*
- *Passiflora foetida*

**TALL SPECIES**

1. *Eucalyptus camaldulensis*
2. *Phyllanthus reticulatus*
**CROSS-SECTION A-A**

*showing typical riverine vegetation*

**SITE PLAN OF BELT TRANSECT**

*showing location of vegetation (excluding ground covers)*

**NOTES:**
1. The drawings are for diagrammatic purposes to show position of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank of the river vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through quadrat sampling, are stored in the project's database.

---

**OTHER SPECIES LOCATED AT SITE:**
- *Fallopia sp.*
- *Triola microstachys*
- *Ligustrum sp.*
- *Acacia sp.*
- *Syzygium microphyllum*
- *Syzygium paniculatum*
- *Syzygium longifolium*
- *Phyllanthus caducus*

---

**TREE ID NO.**

<table>
<thead>
<tr>
<th>TREE ID No.</th>
<th>HEIGHT RANGE (m)</th>
<th>GENUS SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-104, 105-109</td>
<td>1.7</td>
<td>Pandanus spiralis</td>
</tr>
<tr>
<td>110-112, 114-116, 117-119</td>
<td>3.2</td>
<td>Syzygium 'hirta'</td>
</tr>
<tr>
<td>120-122, 123-125</td>
<td>2.5</td>
<td>Canthium schultii</td>
</tr>
<tr>
<td>126-128</td>
<td>1.2</td>
<td>Melaleuca elongata</td>
</tr>
<tr>
<td>129-131</td>
<td>1.8</td>
<td>Barringtonia acutangula</td>
</tr>
<tr>
<td>132-134</td>
<td>1.3</td>
<td>Syzygium paniculatum</td>
</tr>
<tr>
<td>135-137</td>
<td>1.4</td>
<td>Melaleuca caducifolia</td>
</tr>
</tbody>
</table>

---

**NATIONAL LANDSCAPE PROGRAM**

Department of Lands, Planning & Environment
### Table 10.48  Major Vegetation Species Recorded at Site 2 on Emu Creek located within Sub-section 19c

<table>
<thead>
<tr>
<th>Plant Name – <em>Genus species</em></th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia sp.</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19c/2</td>
</tr>
<tr>
<td><em>Barringtonia acutangula</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19c/2</td>
</tr>
<tr>
<td><em>Cyperus sp.</em></td>
<td>Forb</td>
<td></td>
<td>19c/2</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>19c/2</td>
</tr>
<tr>
<td><em>Eucalyptus polycarpa</em></td>
<td>Tree</td>
<td></td>
<td>19c/2</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>19c/2</td>
</tr>
<tr>
<td><em>Phyllanthus reticulatus</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19c/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Aerial view along the Katherine Gorge
226 Katherine River

Top End Waterways Project
DALY RIVER CATCHMENT

Rapid on Katherine River at Site 19c/1

Emu Creek (Site 19c/2)

Riffle at Site 19c/3 on Katherine River within Gorge

Rapids along Katherine Gorge (above Site 19c/3)

Riparian vegetation on Katherine River (Site 19c/1)

Riparian vegetation on Katherine River (Site 19c/3)
10.13.4 Katherine River – Below Birdie Creek

Sub-section 19d encompasses the Katherine River from the junction with Grace Creek upstream to Birdie Creek junction. This sub-section includes the catchment area of Grace and Fanny Creeks. Of the five sites within this sub-section, three were fully assessed. Two sites were located on Katherine River and one on Grace Creek. The two photographic sites were located on Ironbark and Snake Creeks (refer Table 10.49 and Map 52).

Table 10.49 Summary of Survey Information for Sub-section 19d – Katherine River Below Birdie Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Katherine River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Katherine River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ironbark Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
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<tr>
<td>5</td>
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<td></td>
<td>√</td>
</tr>
<tr>
<td>6</td>
<td>Grace Creek</td>
<td>A</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
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</tr>
</tbody>
</table>

Rapid on Katherine River at Site 19d/1
Figure 10.138  Cross-section Surveys for Site 19d/1 – Katherine River
Figure 10.139  Cross-section Surveys for Site 19d/3 – Katherine River
Figure 10.140  Cross-section Surveys for Site 19d/6 – Grace Creek
<table>
<thead>
<tr>
<th>Plant Name – <em>Genus species</em></th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/3, 19d/4, 19d/5, 19d/6</td>
</tr>
<tr>
<td><em>Acacia platycarpa</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/4</td>
</tr>
<tr>
<td><em>Acacia plectocarpa</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/4</td>
</tr>
<tr>
<td><em>Alphitonia excelsa</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Ampelopteris prolifera</em></td>
<td>Fern</td>
<td></td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Antidesma ghaesembilla</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Barringtonia acutangula</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/3, 19d/5, 19d/6</td>
</tr>
<tr>
<td><em>Canthium schultzii</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Carallia brachiata</em></td>
<td>Tree</td>
<td></td>
<td>19d/3</td>
</tr>
<tr>
<td><em>Chrysopogon latifolius</em></td>
<td>Grass</td>
<td></td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Cyperus javanicus</em></td>
<td>Forb</td>
<td></td>
<td>19d/3, 19d/5, 19d/6</td>
</tr>
<tr>
<td><em>Elaeocarpus arnhemicus</em></td>
<td>Tree</td>
<td></td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>19d/3, 19d/5, 19d/6</td>
</tr>
<tr>
<td><em>Eucalyptus latifolia</em></td>
<td>Tree</td>
<td></td>
<td>19d/4</td>
</tr>
<tr>
<td><em>Ficus coronulata</em></td>
<td>Tree</td>
<td></td>
<td>19d/5, 19d/6</td>
</tr>
<tr>
<td><em>Gomphrena canescens</em></td>
<td>Forb</td>
<td></td>
<td>19d/4</td>
</tr>
<tr>
<td><em>Goodenia purpurascens</em></td>
<td>Forb</td>
<td></td>
<td>19d/4</td>
</tr>
<tr>
<td><em>Hyptis suaveolens</em></td>
<td>Forb</td>
<td>E/N</td>
<td>19d/4, 19d/6</td>
</tr>
<tr>
<td><em>Limnophila sp.</em></td>
<td>Forb</td>
<td></td>
<td>19d/4</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>19d/5, 19d/6</td>
</tr>
<tr>
<td><em>Melaleuca leucadendra</em></td>
<td>Tree</td>
<td></td>
<td>19d/3</td>
</tr>
<tr>
<td><em>Mnesithea rottboelliioides</em></td>
<td>Grass</td>
<td></td>
<td>19d/6</td>
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<tr>
<td><em>Nauclea orientalis</em></td>
<td>Tree</td>
<td></td>
<td>19d/3</td>
</tr>
<tr>
<td><em>Pandanus aquaticus</em></td>
<td>Tree</td>
<td></td>
<td>19d/3, 19d/6</td>
</tr>
<tr>
<td><em>Pandanus spiralis</em></td>
<td>Tree</td>
<td></td>
<td>19d/4, 19d/6</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Forb</td>
<td>E</td>
<td>19d/4, 19d/6</td>
</tr>
<tr>
<td><em>Sida acuta</em></td>
<td>Forb</td>
<td>E/N</td>
<td>19d/6</td>
</tr>
<tr>
<td><em>Sorghum sp.</em></td>
<td>Grass</td>
<td></td>
<td>19d/6</td>
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<tr>
<td><em>Syzygium armstrongii</em></td>
<td>Tree</td>
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<td>19d/3</td>
</tr>
<tr>
<td><em>Syzygium eucalyptoides</em></td>
<td>Low tree / shrub</td>
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<td>19d/4</td>
</tr>
<tr>
<td><em>Triumfetta sp.</em></td>
<td>Forb</td>
<td></td>
<td>19d/6</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
View along Katherine River below Site 19d/3

View along a pool on Grace Creek at Site 19d/6
### 10.13.5 Katherine River – Upper (includes Birdie, Gimbat and Snowdrop Creeks)

Sub-section 19e encompasses the Katherine River from the junction with Birdie Creek to the top of the catchment. This sub-section includes the Arnhem Land Plateau. Of the nine sites located within this sub-section, six were fully assessed - four being located on the Katherine River (refer Table 10.51 and Map 53).

#### Table 10.51 Summary of Survey Information for Sub-section 19e – Upper Katherine River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
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<tbody>
<tr>
<td>1</td>
<td>Birdie Creek</td>
<td>A</td>
<td>Run</td>
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</tr>
<tr>
<td>2</td>
<td>Katherine River</td>
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<tr>
<td>3</td>
<td>Katherine River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Katherine River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Katherine River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Katherine River</td>
<td>A</td>
<td>Rapid</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Unnamed Creek (Arm of Katherine River)</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Jackys Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>10</td>
<td>Hardys Creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

*Riffle on Katherine River at Sleisbeck (Site 19e/3)*

*Reach along Katherine River at Site 19e/4*

*Pool along Centipede Dreaming Gorge (Site 19e/6: Katherine River)*

*Rapid along Centipede Dreaming Gorge (Site 19e/6: Katherine River)*
Figure 10.142  Cross-section Survey for Site 19e/1 – Birdie Creek

View along the run on Birdie Creek at Site 19e/1
Figure 10.143 Cross-section Surveys for Site 19e/3 – Katherine River
Figure 10.144  Cross-section Surveys for Site 19e/4 – Katherine River
Figure 10.145  Cross-section Surveys for Site 19e/5 – Katherine River
Figure 10.146  Cross-section Surveys for Site 19e/6 – Katherine River

KATHERINE RIVER - SITE 19E/6 (14.8.97)
CROSS-SECTION A - RAPID

KATHERINE RIVER - SITE 19E/6 (14.8.97)
CROSS-SECTION B - POOL

Rock outcrops: Bed, left & right, lower & upper banks

Rock outcrops: Bed, left lower & upper, right upper banks
Figure 10.147  Cross-section Surveys for Site 19e/7 – Unnamed Creek (Arm of Katherine River)
**Top End Waterways Project**

**DALY RIVER CATCHMENT**

**243 Katherine River**

**vertical height**

**Tree ID No.**

<table>
<thead>
<tr>
<th>Height Range (m)</th>
<th>Genus Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6-1.9</td>
<td>Melaleuca argentea</td>
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<tr>
<td>2-5</td>
<td>Pandanus australis</td>
</tr>
<tr>
<td>5.1-18.20-27</td>
<td>Phyllanthus reticulatus</td>
</tr>
<tr>
<td>8.10</td>
<td>Syzygium anisophylli</td>
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<tr>
<td>28</td>
<td>Acacia heterodoxe</td>
</tr>
<tr>
<td>29</td>
<td>Melaleuca viridiflora</td>
</tr>
<tr>
<td>30</td>
<td>Eucalyptus microphylla</td>
</tr>
</tbody>
</table>

**OTHER SPECIES LOCATED AT SITE:**

- *Blumea saxatilis*
- *Calothamnium procumbens*
- *Cyperus aquatilis*
- *Tragia spicata*
- *Utricularia glomerata*
- *Macleaya pyramidalis*
- *Nelumbo canadensis*
- *Brachycome sp.*
- *Oxalis acetosella*
- *Andropogon phragmites*
- *Grevillea robusta*
- *Eucalyptus camaldulensis*
- *Ficus carica*
- *Hibiscus schizopetalus*
- *Termitaria pterophylla*
- *Gynandriris sanguineus*
- *Passiflora foetida*
- **Hyposmocoma reticulata* ( Previously)
- *Hyposmocoma approximata* (Previously)

**NOTES:**

1. The drawings are for diagrammatic purposes to show location of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A indicates all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at the right edge of the water’s edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree included in the profile, and groundcovers identified through quadrat sampling, are located in the project’s database.

**SITE PLAN OF BELT TRANSECT**

showing location of vegetation (excluding ground covers)
CROSS-SECTION A - A
showing typical riverine vegetation

VERTICAL HEIGHT
less to scale

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)
Table 10.52  Major Vegetation Species Recorded at Sites 1, 2, 4, 6 and 7 located within Sub-section 19e – Upper Katherine River

<table>
<thead>
<tr>
<th>Plant Name – <em>Genus species</em></th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia difficilis</td>
<td>Low tree / shrub</td>
<td>E</td>
<td>19e/7</td>
</tr>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>19e/1, 19e/4, 19e/6, 19e/7</td>
</tr>
<tr>
<td>Acacia sp.</td>
<td>Low tree / shrub</td>
<td>E</td>
<td>19e/2</td>
</tr>
<tr>
<td>Acacia umbellata</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>19e/6</td>
</tr>
<tr>
<td>Antidesma ghaesembilla</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>19e/4</td>
</tr>
<tr>
<td>Arundinella nepalensis</td>
<td>Grass</td>
<td></td>
<td>19e/1</td>
</tr>
<tr>
<td>Barringtonia acutangula</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>19e/1, 19e/2</td>
</tr>
<tr>
<td>Brachiaria sp.</td>
<td>Grass</td>
<td></td>
<td>19e/7</td>
</tr>
<tr>
<td>Calytrix brownii</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>19e/6</td>
</tr>
<tr>
<td>Capparis umbonata</td>
<td>Low tree / shrub</td>
<td>E/N</td>
<td>19e/6</td>
</tr>
<tr>
<td>Carallia brachiata</td>
<td>Tree</td>
<td></td>
<td>19e/1, 19e/2, 19e/6</td>
</tr>
<tr>
<td>Centipeda minima</td>
<td>Forb</td>
<td></td>
<td>19e/6</td>
</tr>
<tr>
<td>Chara or Nitella sp.</td>
<td>Forb</td>
<td></td>
<td>19e/7</td>
</tr>
<tr>
<td>Chrysopogon fallax</td>
<td>Grass</td>
<td></td>
<td>19e/4</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>19e/4, 19e/6, 19e/7</td>
</tr>
<tr>
<td>Cyperus haspan</td>
<td>Forb</td>
<td></td>
<td>19e/7</td>
</tr>
<tr>
<td>Ectrosia leporina</td>
<td>Grass</td>
<td></td>
<td>19e/4, 19e/7</td>
</tr>
<tr>
<td>Elaeocarpus arnhemicus</td>
<td>Tree</td>
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<td>19e/1</td>
</tr>
<tr>
<td>Eragrostis sp.</td>
<td>Grass</td>
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<td>19e/4</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>19e/2, 19e/4, 19e/6, 19e/7</td>
</tr>
<tr>
<td>Ficus coronulata</td>
<td>Tree</td>
<td></td>
<td>19e/1, 19e/6</td>
</tr>
<tr>
<td>Fimbristylis composita</td>
<td>Forb</td>
<td></td>
<td>19e/6</td>
</tr>
<tr>
<td>Fimbristylis denudata</td>
<td>Forb</td>
<td></td>
<td>19e/6</td>
</tr>
<tr>
<td>Germainia truncatiglumis</td>
<td>Grass</td>
<td></td>
<td>19e/7</td>
</tr>
<tr>
<td>Goodenia purpurascens</td>
<td>Forb</td>
<td></td>
<td>19e/6</td>
</tr>
<tr>
<td>Grevillea pteridifolia</td>
<td>Tree</td>
<td></td>
<td>19e/6, 19e/7</td>
</tr>
<tr>
<td>Gymnanthera oblonga</td>
<td>Climber</td>
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<td>19e/1, 19e/4</td>
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<tr>
<td>Heteropogon contortus</td>
<td>Grass</td>
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<td>19e/7</td>
</tr>
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<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>19e/1, 19e/7</td>
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<td>Limnophila brownii</td>
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<td>19e/7</td>
</tr>
<tr>
<td>Limnophila sp.</td>
<td>Forb</td>
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<td>19e/7</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory  
Continued
Table 10.52  Major Vegetation Species Recorded at Sites 1, 2, 4, 6 and 7 located within Sub-section 19e – Upper Katherine River (continued)

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litsea glutinosa</td>
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</tr>
<tr>
<td>Ludwigia octovalvis</td>
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<td>19e/7</td>
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<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
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<td>19e/2, 19e/6</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
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<td>19e/1, 19e/4, 19e/7</td>
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<td>Melochia corchorifolia</td>
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<td>19e/1</td>
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<tr>
<td>Mnesithea rottboellioides</td>
<td>Grass</td>
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<td>19e/7</td>
</tr>
<tr>
<td>Nelsonia campestris</td>
<td>Forb</td>
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<td>19e/1, 19e/4</td>
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<td>Nymphaea violacea</td>
<td>Forb</td>
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<td>19e/7</td>
</tr>
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<td>Nymphoides hydrocharoides</td>
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<td>19e/7</td>
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<td>19e/2, 19e/4, 19e/6, 19e/7</td>
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<td>Pandanus spiralis</td>
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<td>19e/1, 19e/6, 19e/7</td>
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<td>Panicum mindanaense</td>
<td>Grass</td>
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<td>19e/1</td>
</tr>
<tr>
<td>Panicum sp.</td>
<td>Grass</td>
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<td>19e/4, 19e/7</td>
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<td>Passiflora foetida</td>
<td>Forb</td>
<td>E</td>
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<td>Setaria apiculata</td>
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<td>Sorghum sp.</td>
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<td>19e/7</td>
</tr>
<tr>
<td>Syzygium armstrongii</td>
<td>Tree</td>
<td></td>
<td>19e/1, 19e/4, 19e/6</td>
</tr>
<tr>
<td>Syzygium eucalyptoides</td>
<td>Low tree / shrub</td>
<td></td>
<td>19e/6</td>
</tr>
<tr>
<td>Syzygium suborbiculare</td>
<td>Tree</td>
<td></td>
<td>19e/6, 19e/7</td>
</tr>
<tr>
<td>Terminalia platyphylla</td>
<td>Tree</td>
<td></td>
<td>19e/1</td>
</tr>
<tr>
<td>Triodia microstachys</td>
<td>Grass</td>
<td></td>
<td>19e/6</td>
</tr>
<tr>
<td>Utricularia fulva</td>
<td>Forb</td>
<td></td>
<td>19e/7</td>
</tr>
<tr>
<td>Xyris complanata</td>
<td>Forb</td>
<td></td>
<td>19e/7</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
10.14 Limestone Creek

Sub-section 20 includes the catchment area of Limestone and Scott Creeks. Three sites have been fully assessed in this sub-section, two of which are located on Limestone Creek and the third on Scott Creek (refer Table 10.53 and Map 54).

Table 10.53  Summary of Survey Information for Sub-section 20 – Limestone Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Limestone Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Limestone Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Scott Creek</td>
<td>A</td>
<td>Riffle</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 10.150  Cross-section Surveys for Site 20/1 – Limestone Creek
Figure 10.151  Cross-section Surveys for Site 20/2 – Limestone Creek
Figure 10.152  Cross-section Surveys for Site 20/5 – Scott Creek
Table 10.54  Major Vegetation Species Recorded at Sites 1, 2 and 5 located within Sub-section 20 – Limestone Creek

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>20/1, 20/5</td>
</tr>
<tr>
<td>Acacia sp.</td>
<td>Low tree / shrub</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Arundinella nepalensis</td>
<td>Grass</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Canarium australianum</td>
<td>Tree</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Casuarina cunninghamiana</td>
<td>Tree</td>
<td></td>
<td>20/1</td>
</tr>
<tr>
<td>Celtis philippinensis</td>
<td>Tree</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Chara sp.</td>
<td>Forb</td>
<td></td>
<td>20/5</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>20/1</td>
</tr>
<tr>
<td>Dichanthium fecundum</td>
<td>Grass</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Diospyros humilis</td>
<td>Tree</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Eragrostis speciosa</td>
<td>Grass</td>
<td></td>
<td>20/5</td>
</tr>
<tr>
<td>Eragrostis tenellula</td>
<td>Grass</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>20/1, 20/2, 20/5</td>
</tr>
<tr>
<td>Eucalyptus patellaris</td>
<td>Tree</td>
<td></td>
<td>20/5</td>
</tr>
<tr>
<td>Excoecaria parvifolia</td>
<td>Tree</td>
<td></td>
<td>20/1</td>
</tr>
<tr>
<td>Ficus coronulata</td>
<td>Tree</td>
<td></td>
<td>20/1, 20/2, 20/5</td>
</tr>
<tr>
<td>Flacourtia territorialis</td>
<td>Low tree / shrub</td>
<td></td>
<td>20/1</td>
</tr>
<tr>
<td>Heteropogon contortus</td>
<td>Grass</td>
<td></td>
<td>20/2, 20/5</td>
</tr>
<tr>
<td>Hyptis suaveolens</td>
<td>Forb</td>
<td>E/N</td>
<td>20/1, 20/2, 20/5</td>
</tr>
<tr>
<td>Imperata cylindrica</td>
<td>Grass</td>
<td></td>
<td>20/5</td>
</tr>
<tr>
<td>Lophostemon grandiflorus</td>
<td>Tree</td>
<td></td>
<td>20/1, 20/2, 20/5</td>
</tr>
<tr>
<td>Melaleuca leucadendra</td>
<td>Tree</td>
<td></td>
<td>20/1, 20/5</td>
</tr>
<tr>
<td>Nauclea orientalis</td>
<td>Tree</td>
<td></td>
<td>20/1</td>
</tr>
<tr>
<td>Nelsonia campestris</td>
<td>Forb</td>
<td></td>
<td>20/2, 20/5</td>
</tr>
<tr>
<td>Pandanus spiralis</td>
<td>Tree</td>
<td></td>
<td>20/5</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Forb</td>
<td>E</td>
<td>20/1, 20/2, 20/5</td>
</tr>
<tr>
<td>Phyllanthus reticulatus</td>
<td>Low tree / shrub</td>
<td></td>
<td>20/2</td>
</tr>
<tr>
<td>Sida acuta</td>
<td>Forb</td>
<td>E/N</td>
<td>20/1</td>
</tr>
<tr>
<td>Terminalia platyphylla</td>
<td>Tree</td>
<td></td>
<td>20/1, 20/2, 20/5</td>
</tr>
<tr>
<td>Timonius timon</td>
<td>Tree</td>
<td></td>
<td>20/5</td>
</tr>
<tr>
<td>Xanthium occidentale</td>
<td>Forb</td>
<td>E/N</td>
<td>20/1</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
10.15 King and Dry Rivers

10.15.1 King River – Below Dry River

Sub-section 21a includes the catchment area of King River, downstream of the junction with Dry River. Of the four sites within this sub-section, three sites have been fully assessed and are located on King River (refer Table 10.55 and Map 55).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>King River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>King River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>King River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A dry pool on King River at Site 21a/3 (approximately 25-30 km upstream of Victoria Highway crossing)
Figure 10.153  Cross-section Surveys for Site 21a/1 – King River
Figure 10.154  Cross-section Surveys for Site 21a/2 – King River
Figure 10.155  Cross-section Surveys for Site 21a/3 – King River
258 King and Dry Rivers

Top End Waterways Project
DALY RIVER CATCHMENT

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
* Individual Tree
v Vines
• Clump of Trees

VERTICAL HEIGHT
( not to scale)

CROSS-SECTION A-A
showing typical riverine vegetation

HORIZONTAL SCALE 1:200

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

OTHER SPECIES LOCATED AT SITE:
Gnophos: Chrysogogon lalex
Cymbidium decumatum
Dianthus fuscatus
Mesembryanthemum
Pancernus melantherus
Shrub:
Sida spinosa
Tree/Shrub:
Acacia nodosa
Tree:
Eucalyptus camaldulensis
Vine:
Flagellaria indica

NOTES
1. The drawings are for diagrammatic purposes to show location of and a typical cross-section through, the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and ground covers identified through quadrat sampling are located in the project's database.

RIVERINE VEGETATION PROFILE

KING RIVER

Sub-section 21A Site 1

Figure 10.158

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT

258

King and Dry Rivers

Department of Lands, Planning & Environment
National Landscape Program

Date 12.10.95

Figur 15.18
259 King and Dry Rivers

Top End Waterways Project
DALY RIVER CATCHMENT

LEGEND
- Water Edge
- Water Surface
- Water Mark
- Upper Bank Height
- Upper Bank Width
- Individual Tree
- Clump of Trees
- Vine

VERTICAL HEIGHT

20 Tree Height (m)

- 10

1. Cross-section A-A shows the typical riverine vegetation
2. Site plan of belt transect showing the location of vegetation (excluding ground covers)

National Landcare Program
Department of Lands, Planning & Environment

TREE
ID No.

HEIGHT RANGE
(m)

GENUS SPECIES

1.2.9
1.3-3
Ceratonia nimbata

3.7.16
9.5-12
Casuarina cunninghamiana

4
15
Eucalyptus camaldulensis

5.5.11.18
21.22.24
3-6
Strychnos nux-vomica

6
2.5
Acacia holosericea

10.23
2-9
Exocarpus pinnatus

12.17.20
6.5-12
Exocarpus pinnatus

13.15.19
15-3.5
Asclepias fimbriata

OTHER SPECIES LOCATED AT SITE:

Grasses: Cymbopogon decumbens, Homorogonoea confertis
Stems: Melaleuca rotundifolia
Subshrubs: Grewia xanthina
Trees: Terminalia arjuna, Termitaria praethyrina
Vines: Passiflora incarnata

NOTES
1. The drawings are for diagrammatic purposes to show the location of and a typical cross section through, the riverine vegetation
2. Cross-section A-A includes all vegetation above the line marked through the belt transect
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation
4. Measurements for each tree located in the profile, and ground covers identified through quadrat sampling, are located in the project's database.

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE

KING RIVER
Date 6.10.86
Sub-section 21A Site 3 Figure 10.137
Table 10.56  Major Vegetation Species Recorded at Site 2 on King River located within Sub-section 21a

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia holosericea</td>
<td>Low tree / shrub</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Casuarina cunninghamiana</td>
<td>Tree</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Cathormion umbellatum</td>
<td>Low tree / shrub</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Grass</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Eragrostis tenellula</td>
<td>Grass</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Eucalyptus camaldulensis</td>
<td>Tree</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Flacourtia territorialis</td>
<td>Low tree / shrub</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Glinus oppositifolius</td>
<td>Forb</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Heliotropium ovalifolium</td>
<td>Forb</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Hibiscus meraukensis</td>
<td>Forb</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Melaleuca argentea</td>
<td>Tree</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Nelsonia campestris</td>
<td>Forb</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Pandanus aquaticus</td>
<td>Tree</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Passiflora foetida</td>
<td>Forb E</td>
<td></td>
<td>21a/2</td>
</tr>
<tr>
<td>Terminalia platyphylia</td>
<td>Tree</td>
<td></td>
<td>21a/2</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Riparian vegetation along King River at Site 21a/2 (above Victoria Highway crossing)
10.15.2 King River – Above Dry River

Sub-section 21b includes the catchment area of King River, upstream of the junction with Dry River. Of the three sites located on King River within this sub-section, two sites have been fully assessed (refer Table 10.57 and Map 56).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>King River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>King River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>King River</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Erosion due to a access track and crossing on King River near Site 21b/1
Figure 10.158  Cross-section Surveys for Site 21b/1 – King River
Figure 10.159  Cross-section Surveys for Site 21b/3 – King River
265 King and Dry Rivers

Top End Waterways Project
DALY RIVER CATCHMENT

**Legend**
- WE: Water Edge
- WS: Water Surface
- WM: Water Mark
- UB: Upper Bank
- UBH: Upper Bank Height
- UBW: Upper Bank Width
- Individual Tree
- Clump of Trees
- Vine

**Cross-section A-A**
showing typical riverine vegetation

**Vertical Height**
(not to scale)

**Site Plan of Belt Transect**
showing location of vegetation
(excluding ground covers)

**Tree ID No.**

<table>
<thead>
<tr>
<th>Tree ID No.</th>
<th>Height Range (m)</th>
<th>Genus Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 5, 7, 8</td>
<td>1.3-3</td>
<td>Pandanus spiralis</td>
</tr>
<tr>
<td>2, 3</td>
<td>1.1</td>
<td>Melaleuca leucadendra</td>
</tr>
<tr>
<td>4, 6, 12</td>
<td>0.4-1.5</td>
<td>Eucalyptus camaldulensis</td>
</tr>
<tr>
<td>9</td>
<td>0.5</td>
<td>Acacia pulchella</td>
</tr>
<tr>
<td>10, 11, 13</td>
<td>0.2-0.65</td>
<td>Acacia decandala</td>
</tr>
<tr>
<td>14, 15</td>
<td>0.3-0.4</td>
<td>Gymnospermae acida</td>
</tr>
<tr>
<td>16, 17</td>
<td>0.2-0.5</td>
<td>Eucalyptus cyanocarya or Eucalyptus urophylla</td>
</tr>
</tbody>
</table>

**Other Species Located at Site**

- Genus: *Eucalyptus*
- Species: *E. cyanocarya*
- Species: *E. urophylla*

**Notes**
1. The drawings are for diagnostic purposes. Sites are typical cross-sections through the riverine vegetation.
2. Cross-section A-A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water’s edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and groundcover identified through quadrat sampling, are located in the project database.

**Top End Waterways Project**
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE

**King River**
Date: 8.10.96
Sub-section: 21B Site 3 Figure 10.190
### Table 10.58  Major Vegetation Species Recorded at Site 1 on King River located within Sub-section 21b

<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Aristida holothera</em></td>
<td>Grass</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Dichanthium fecundum</em></td>
<td>Grass</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Eragrostis cumingii</em></td>
<td>Grass</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Eulalia aurea</em></td>
<td>Grass</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Melaleuca argentea</em></td>
<td>Tree</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Mnesithea rottboellioides</em></td>
<td>Grass</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Pandanus spiralis</em></td>
<td>Tree</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Forb E</td>
<td></td>
<td>21b/1</td>
</tr>
<tr>
<td><em>Sporobolus pulchellus</em></td>
<td>Grass</td>
<td></td>
<td>21b/1</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

Riparian vegetation along King River at Site 21b/1
10.15.3  Dry River

Sub-section 22 includes the catchment area of Dry River. Three sites, located on Dry River, have been fully assessed within this sub-section (refer Table 10.59 and Map 57).

Table 10.59  Summary of Survey Information for Sub-section 22 – Dry River

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dry River</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dry River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Riffle</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Dry River</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Run</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach along Dry River at Site 22/1 (approximately 2km upstream of King River junction)
Figure 10.161  Cross-section Surveys for Site 22/1 – Dry River
Figure 10.162 Cross-section Surveys for Site 22/2 – Dry River
Figure 10.163  Cross-section Surveys for Site 22/3 – Dry River
CROSS-SECTION A-A showing typical riverine vegetation

SITE PLAN OF BELT TRANSECT showing location of vegetation (excluding ground covers)

VERTICAL HEIGHT
inlet to swamp

LEGEND
WE Water Edge
WS Water Surface
WM Water Mark
UB Upper Bank
UBH Upper Bank Height
UBW Upper Bank Width
* Individual Tree
\ Clump of Trees
\ Vine

<table>
<thead>
<tr>
<th>TREE</th>
<th>HEIGHT RANGE</th>
<th>GENUS SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>Eucalyptus camaldulensis</td>
</tr>
<tr>
<td>2, 3</td>
<td>11-13</td>
<td>Eucalyptus pauciflora</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>Eucalyptus camaldulensis</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>Terminalia platyphylla</td>
</tr>
<tr>
<td>6</td>
<td>3.2</td>
<td>Acacia holosericea</td>
</tr>
</tbody>
</table>

OTHER SPECIES LOCATED AT SITE:

Fruits: Netertia camaldulensis
Grasses: Cymbopogon decumbens
Vines: Acacia greggi
Shrubs: Grevia robusta
Trees: Acacia dealbata

NOTES:
1. The drawings are for diagrammatic purposes to show the location of and a typical cross-section through the riverine vegetation.
2. Cross-section A-A includes vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of the riverine vegetation.
4. Measurements for each tree located in the profile, and groundcover identified through quadrat sampling, are located in the project's database.

National Landcare Program
Department of Lands, Planning & Environment

TOP END WATERWAYS PROJECT
DAILY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE
DRIY RIVER
Date: 12.11.06
Sub-section: 22 Site 2 Figure 16.164
<table>
<thead>
<tr>
<th>Plant Name – Genus species</th>
<th>Structural Type</th>
<th>Exotic (E) / Noxious (N)*</th>
<th>Sites Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acacia holosericea</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Alternanthera nodiflora</em></td>
<td>Forb</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Antidesma ghaesembilla</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Atalaya hemiglua</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Casuarina cunninghamiana</em></td>
<td>Tree</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Cathormion umbellatum</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Chrysopogon fallax</em></td>
<td>Grass</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Cynodon dactylon</em></td>
<td>Grass</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Eucalyptus camaldulensis</em></td>
<td>Tree</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Eucalyptus microtheca</em></td>
<td>Tree</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Eulalia aurea</em></td>
<td>Grass</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Excoecaria parvifolia</em></td>
<td>Tree</td>
<td></td>
<td>22/1, 22/3</td>
</tr>
<tr>
<td><em>Lophostemon grandiflorus</em></td>
<td>Tree</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Melaleuca clavigera</em></td>
<td>Tree</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Melaleuca viridiflora</em></td>
<td>Low tree / shrub</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Melochia pyramidata</em></td>
<td>Forb</td>
<td>E</td>
<td>22/1</td>
</tr>
<tr>
<td><em>Mnesithea rottboellioides</em></td>
<td>Grass</td>
<td></td>
<td>22/3</td>
</tr>
<tr>
<td><em>Paspalidium distans</em></td>
<td>Grass</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Passiflora foetida</em></td>
<td>Forb</td>
<td>E</td>
<td>22/1</td>
</tr>
<tr>
<td><em>Strychnos lucida</em></td>
<td>Tree</td>
<td></td>
<td>22/1</td>
</tr>
<tr>
<td><em>Terminalia platyphylla</em></td>
<td>Tree</td>
<td></td>
<td>22/3</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory
View along reach at Site 222 on Dry River (downstream of Gauge Station 8140011)

View along reach at Site 223 on Dry River
10.15.4 Durrinyan Creek

Sub-section 23 includes the catchment area of Durrinyan Creek. Of the two sites located in this sub-section, one site was fully assessed (refer Table 10.61 and Map 58).

Table 10.61 Summary of Survey Information for Sub-section 23 – Durrinyan Creek

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Durrinyan Creek</td>
<td>A</td>
<td>Pool</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Durrinyan Creek</td>
<td>A</td>
<td>Run</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
</tbody>
</table>

View along large dry pool on Durrinyan Creek at Site 23/2
Figure 10.165  Cross-section Surveys for Site 23/2 – Durrinyan Creek
Top End Waterways Project
DALY RIVER CATCHMENT

LEGEND
WE: Water Edge
WS: Water Surface
WM: Water Mark
UB: Upper Bank
UBH: Upper Bank Height
UBW: Upper Bank Width
△ Individual Tree
□ Clump of Trees
◆ Vine

CROSS-SECTION A - A
showing typical riverine vegetation
HORIZONTAL SCALE 1:50

SITE PLAN OF BELT TRANSECT
showing location of vegetation
(excluding ground covers)

NOTES
1. The drawings are for diagrammatic purposes to show position of and a typical cross-section through the riverine vegetation.
2. Cross-section A - A includes all vegetation above the line marked through the belt transect.
3. The vegetation profile (belt transect) is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation.
4. Measurements for each tree located in the profile, and ground cover identified through quadrat sampling, are located in the project's database.

OTHER SPECIES LOCATED AT SITE:

<table>
<thead>
<tr>
<th>TREE ID No.</th>
<th>HEIGHT RANGE (m)</th>
<th>GENUS SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>Eucalyptus camaldulensis</td>
</tr>
<tr>
<td>2, 7, 11, 15</td>
<td>18-7</td>
<td>Asplanchis excelsa</td>
</tr>
<tr>
<td>3, 5, 6, 12-15</td>
<td>17-7</td>
<td>Allocasuarina jurcarpa</td>
</tr>
<tr>
<td>4, 17</td>
<td>6-12</td>
<td>Terminalia chinensis</td>
</tr>
</tbody>
</table>

OTHER SPECIES:

Fruits: Ginko biloba
Gnids: Dendrotheca cassinoides
Euphorbiaceae
Malvaceae
RHS: Grewia resiniflua
Tree/Shrub: Alalyx hemiglauca

EXOTIC SPECIES:

TOP END WATERWAYS PROJECT
DALY RIVER CATCHMENT
RIVERINE VEGETATION PROFILE
DURRINIAN CREEK
Date: 7.11.96
Sub-section 23 Site 2 Figure 10.186
### Table 10.62 Major Vegetation Species Recorded at Site 1 on Durrinyan Creek located within Sub-section 23

<table>
<thead>
<tr>
<th>Plant Name – <em>Genus species</em></th>
<th>Structural Type</th>
<th>Site Where Recorded (Sub-section No. / Site No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Eucalyptus microtheca</em></td>
<td>Tree</td>
<td>23/1</td>
</tr>
<tr>
<td><em>Eulalia aurea</em></td>
<td>Grass</td>
<td>23/1</td>
</tr>
<tr>
<td><em>Mnesithea rottboelioides</em></td>
<td>Grass</td>
<td>23/1</td>
</tr>
</tbody>
</table>

* Declared Noxious Weed within the Northern Territory

*View along reach on Durrinyan Creek at Site 23/2*
Eucalyptus camaldulensis
10.16 Seventeen Mile Creek

Sub-section 24 includes the catchment area of Seventeen Mile Creek. One site was fully assessed within this sub-section (refer Table 10.63 and Map 59).

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Tributary Name</th>
<th>Sample Point Letter</th>
<th>Habitat Type</th>
<th>Cross-Section Survey</th>
<th>Vegetation Profile</th>
<th>Photographic Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seventeen Mile Creek</td>
<td>A</td>
<td>Riffle</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Pool</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View along reach at Site 24/1 on Seventeen Mile Creek (within Nitmiluk National Park).
Figure 10.167 Cross-section Surveys for Site 24/1 – Seventeen Mile Creek
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggradation</td>
<td>The long term build-up of sediment on a length of stream bed, or filling in of the stream channel, so as to raise its overall surface level and form bars.</td>
</tr>
<tr>
<td>Alluvial</td>
<td>Anything that is deposited by stream flow.</td>
</tr>
<tr>
<td>Aquatic Vegetation</td>
<td>Plants that live or grow in, on, or near water. Structural categories include submerged, floating or emergent aquatic vegetation.</td>
</tr>
<tr>
<td>Aquifer</td>
<td>A layer of sand, gravel or porous rock which holds groundwater and allows it to percolate through to wells or springs.</td>
</tr>
<tr>
<td>Armour</td>
<td>A surface layer of large gravel particles which overlays and protects finer sediments beneath it from erosion except during high flows.</td>
</tr>
<tr>
<td>Avulsion</td>
<td>A sudden change in the course of a stream by which a portion of land is cutoff, as where a stream cuts across and forms an oxbow.</td>
</tr>
<tr>
<td>Bank Protection</td>
<td>Materials placed on the face and toe of a bank to protect it from high flow velocities.</td>
</tr>
<tr>
<td>Bankfull</td>
<td>The discharge that results in water levels at the tops of the banks in most places along a stream. This is the flow that usually causes channel change.</td>
</tr>
<tr>
<td>Bar</td>
<td>A temporary deposit of sediment (ie sand, gravel or other unconsolidated sediment) within a stream channel that protrudes out of the water at water mark.</td>
</tr>
<tr>
<td>Bar Types</td>
<td>The 8 bar types include: point, bars with encroaching vegetation, high flow deposits, mid-channel islands, alternate/side irregular, channel bar plain, bars around obstructions and low flow meander infilled channel.</td>
</tr>
<tr>
<td>Baseflow</td>
<td>The low flow within a river or creek during the dry season which may be maintained by the discharge of groundwater.</td>
</tr>
<tr>
<td>Baseline Monitoring/</td>
<td>To establish a reference point or benchmark of the condition of rivers and creeks against which changes in condition can be monitored over time through follow-up replicate surveys. Collecting baseline data is particularly important where there is little existing information.</td>
</tr>
<tr>
<td>Data</td>
<td></td>
</tr>
<tr>
<td>Basin</td>
<td>See ‘Catchment’</td>
</tr>
<tr>
<td>Bed</td>
<td>The bottom of a channel for the passage of water.</td>
</tr>
<tr>
<td>Bedload</td>
<td>The larger, heavier material such as coarse sand, gravel and boulders carried by the natural flow of a stream on or immediately above its bed.</td>
</tr>
<tr>
<td>Bedrock</td>
<td>Rock in a stream bed or banks that is resistant to erosion over long periods of time.</td>
</tr>
<tr>
<td>Bed Stability</td>
<td>The general stability of the stream bed. Aggradation or erosion (degradation) are forms of bed instability.</td>
</tr>
<tr>
<td>Billabong</td>
<td>A section of cut off stream channel on a floodplain which is typically saturated with water.</td>
</tr>
<tr>
<td>Braided Stream</td>
<td>A stream flowing in several channels that divide and reunite.</td>
</tr>
<tr>
<td>Breakout</td>
<td>The place where flood flow has broken through a bank.</td>
</tr>
<tr>
<td>Cascade Habitat</td>
<td>A series of small steps, slides or falls characterised by a step height &lt;1m; gradient 5-60°; and strong currents.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Catchment (river)</td>
<td>An area in which surface runoff collects and from which it is carried by a drainage system, as a river and its tributaries. Also known as drainage basin or watershed.</td>
</tr>
<tr>
<td>Causeway or Crossing</td>
<td>A road constructed across the bed of a stream. All stream flow goes over the road.</td>
</tr>
<tr>
<td>Channel</td>
<td>The whole area between the two high banks.</td>
</tr>
<tr>
<td>Channel Habitat Types</td>
<td>Waterfall, cascade, rapid, riffle, glide, run, pool or backwater</td>
</tr>
<tr>
<td>Colluvial</td>
<td>Loose deposits at the foot of a slope or cliff, brought there principally in response to gravity.</td>
</tr>
<tr>
<td>Control (bed)</td>
<td>An erosion-resistant section of stream bed that prevents short term bed degradation (ie lowering of a stream bed by erosional processes) and bed slope changes.</td>
</tr>
<tr>
<td>Cross-section</td>
<td>A diagram showing the land surface profile across a stream channel, plotted looking downstream.</td>
</tr>
<tr>
<td>Cross-section Survey</td>
<td>Depth measurements across the stream at right angles to the bank.</td>
</tr>
<tr>
<td>Cut Off Meander</td>
<td>A stream diversion or cut off through the neck of a meander or horseshoe bend where a new, relatively short channel is formed. This can occur artificially or naturally.</td>
</tr>
<tr>
<td>Deposition</td>
<td>An accumulation of sediment.</td>
</tr>
<tr>
<td>Degradation</td>
<td>The long term vertical erosion of sediment from a length of river bed so as to lower its overall surface level.</td>
</tr>
<tr>
<td>Discharge (Q)</td>
<td>The volume of flow per unit of time. Usually expressed as cubic metres per second (m³/sec) or megalitres per day (ML/day).</td>
</tr>
<tr>
<td>Diurnal Tides</td>
<td>A tide in which there is only one high water and one low water each lunar day.</td>
</tr>
<tr>
<td>Drainage Density</td>
<td>Ratio of the total length of all channels in a drainage basin to the basin area.</td>
</tr>
<tr>
<td>Drainage Pattern</td>
<td>The configuration of a natural or artificial drainage system; stream patterns reflect the topography and rock patterns of the area.</td>
</tr>
<tr>
<td>Electrical Conductivity</td>
<td>A measure of salinity. The higher the electrical conductivity of a stream, the greater the salinity.</td>
</tr>
<tr>
<td>Ephemeral Stream</td>
<td>A stream which carries water a considerable portion of the time, but which ceases to flow occasionally or seasonally.</td>
</tr>
<tr>
<td>Erosion</td>
<td>A loss of material.</td>
</tr>
<tr>
<td>Estuary</td>
<td>That part of a river which has a free connection with the open sea, where freshwater comes into contact with sea water and which is affected by tides.</td>
</tr>
<tr>
<td>Exotic Species</td>
<td>Introduced species from other regions or countries (ie not indigenous or endemic to an area).</td>
</tr>
<tr>
<td>Flood Channel</td>
<td>A channel across a floodplain that only carries water during floods.</td>
</tr>
<tr>
<td>Floodplain</td>
<td>Depositional surface adjacent to a river that is flooded periodically forming broad alluvial or coastal floodplains.</td>
</tr>
<tr>
<td>Flow Regime</td>
<td>The long term (annual or greater) character of the timing and amount of flow in a stream.</td>
</tr>
</tbody>
</table>
Fluvial Related to the flow in a river or stream.

Geomorphology The study of the processes which shape the landscape.

Glide Habitat A shallow, slow flowing section of water characterised by a depth <0.1m; gradient 1-3°; small currents; and an unbroken and smooth water surface.

Groundwater All subsurface water, especially that part that is in the zone of saturation.

Homogeneous Stream Sections Stream sections which share similar natural features and are in similar condition.

Hydrology The study of rainfall and runoff processes.

Incise Erode the bed of a stream, deepen, degrade severely.

Inside Bend The convex bank on a stream bend as observed from mid-stream.

Instream Habitat The river itself, the banks and the channel.

Intermittent Stream See ‘Ephemeral Stream’

Left Bank The left hand bank of a stream when looking downstream.

Levee An artificial or natural linear ridge on a floodplain, sometimes deposited by a stream on its sides, that holds back flood water.

Longitudinal Profile A diagram showing the land surface profile along a stream channel, usually along the thalweg (elevation plotted against river distance from the mouth).

Longitudinal Profile Survey Depth measurements along the streams’ thalweg.

Lower Bank Is that part of the bank between the water mark (or normal dry season inundation level) and the water surface.

Low Flow The normal discharge in a stream during the dry season, when the tops of most bars are exposed.

Meandering A channel pattern that looks like a series of tight bends or loops with the river confined to a single channel.

Native Species Species that are native to a specific region or country (ie are indigenous or endemic to a region).

Noxious Species A plant declared under the NT Noxious Weeds Act to be a “noxious weed”.

Outside Bend The concave bank on a stream bend as observed from mid-stream.

Overstorey Vegetation Woody plants >1.3m tall, usually with a single stem (eg Eucalypts, Melaleucas, etc). Shrubs >1.3m tall have also been included with overstorey vegetation.

Oxbow Lake A horseshoe-shaped channel or lake on a floodplain created by a cut off and the abandonment of a meander loop.

Perennial Stream A stream which contains water at all times except during extreme drought.

pH A measure of the concentration of the acidity or alkalinity of the water (hydrogen ions in water).
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point Bar</td>
<td>A bar located on the inside of a bend of a stream.</td>
</tr>
<tr>
<td>Point of Inflexion</td>
<td>The point on the upper bank where the bank changes direction and curves over, away from the river channel.</td>
</tr>
<tr>
<td>Pool</td>
<td>A deep body of still or slow moving water, generally occurring in the main channel in an alternating sequence with riffles or runs. Pools are characterised by a depth &gt;0.5m, where the stream widens or deepens and the current declines.</td>
</tr>
<tr>
<td>Rapid Habitat</td>
<td>A section of fast flowing water characterised by a depth &gt;0.3m; gradient 3-5°; strong currents and rocks emerge to break the water's surface.</td>
</tr>
<tr>
<td>Reach</td>
<td>A length of stream channel chosen as the boundary for a survey site and generally representative of the channel habitats and the instream condition. Each reach usually consists of at least two complete pools and riffle/run habitats.</td>
</tr>
<tr>
<td>Reach Environs</td>
<td>Lands immediately adjacent to the river and the riparian zone along the reach and includes the floodplain and valley flat.</td>
</tr>
<tr>
<td>Recharge</td>
<td>The processes involved in the replenishment of water to the zone of saturation.</td>
</tr>
<tr>
<td>Riffle Habitat</td>
<td>A shallow area of a stream, often separating pools, characterised by a depth 0.1-0.3m; gradient 1-3°; moderate currents and an unbroken/unsurface.</td>
</tr>
<tr>
<td>Right Bank</td>
<td>The right hand bank of a stream when looking downstream.</td>
</tr>
<tr>
<td>Riparian Zone</td>
<td>Distinct corridor, including the vegetation, along the edge of a stream. This zone is inextricably linked with the stream both in providing litter (e.g., leaves, branches, etc) to the stream and being affected by the extra moisture that is available.</td>
</tr>
<tr>
<td>Riparian Vegetation</td>
<td>A distinct corridor of vegetation located along the edge of a stream or river.</td>
</tr>
<tr>
<td>River</td>
<td>A large, natural freshwater surface stream having a permanent or seasonal flow and moving toward a sea, lake, or another river in a definite channel.</td>
</tr>
<tr>
<td>Riverine Corridor</td>
<td>The river channel and its riparian land, including part of the adjacent floodplain.</td>
</tr>
<tr>
<td>River Morphology</td>
<td>The study of the channel pattern and the channel geometry at several points along a river channel, including the network of tributaries within the drainage basin.</td>
</tr>
<tr>
<td>River System</td>
<td>The aggregate of stream channels draining a river basin.</td>
</tr>
<tr>
<td>Run Habitat</td>
<td>An area of stream that is too deep to be a riffle and with too large a flow to be a pool. Runs are characterised by a depth &gt;0.3m; gradient 1-3°; small but distinct and uniform current; and an unbroken water surface.</td>
</tr>
<tr>
<td>Runoff</td>
<td>That part of rainfall which finds its way into streams after some of it has evaporated, been taken up by plants or seeped into the ground.</td>
</tr>
<tr>
<td>Sample Point</td>
<td>Is the point along a reach, at a site, where survey information is collected such as cross-sections. Usually two sample points are selected at each site, one at a pool habitat and one at a shallow habitat-type like a riffle or run.</td>
</tr>
<tr>
<td>Scour</td>
<td>Stream bed, bank or floodplain erosion caused by water turbulence shearing or plucking particles away from the surface.</td>
</tr>
<tr>
<td>Sediment</td>
<td>Material carried by flowing or mixing water that falls out to the bottom and deposits when the flow or mixing stops. This can include boulders, gravel, sand, silt, clay and organic matter.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sedimentation</td>
<td>The long term deposition or permanent filling of a stream channel or estuary with sediment.</td>
</tr>
<tr>
<td>Semi-diurnal Tides</td>
<td>A tide having two high waters and two low waters during a tidal day.</td>
</tr>
<tr>
<td>Siltation</td>
<td>See ‘Sedimentation’.</td>
</tr>
<tr>
<td>Site</td>
<td>Is a location on a river or creek where information is collected on the condition of the steams. That is, surveys are completed at sample point/s or photographs only are taken.</td>
</tr>
<tr>
<td>Spring</td>
<td>a general name for any discharge of deep-seated, hot or cold, pure or mineralised water.</td>
</tr>
<tr>
<td>Stable River</td>
<td>The existence in a stream of a balance between erosion and deposition (ie dynamic equilibrium). The channel changes in location but not in pattern, form or slope.</td>
</tr>
<tr>
<td>Stratified Sampling</td>
<td>The sample area (ie catchment) is sub-divided into areas which are different (ie sub-sections). Doing this maximises the difference between the areas and minimises the difference within the area. Usually each sub-divided area is sampled randomly.</td>
</tr>
<tr>
<td>Stream Order</td>
<td>The designation by a dimensionless integer series (1,2,3,….) of a relative position of stream segments in the network of a drainage basin.</td>
</tr>
<tr>
<td>Stream Profile</td>
<td>The longitudinal profile of a stream.</td>
</tr>
<tr>
<td>Sub-catchment</td>
<td>Part of a river catchment that has been sub-divided to show the major tributaries within the catchment.</td>
</tr>
<tr>
<td>Sub-section</td>
<td>Part of a sub-catchment that has been further sub-divided according to attributes including geology, stream gradient, altitude, natural and artificial barriers, bed and bank substrates, stream order, landuse and the tidal limit.</td>
</tr>
<tr>
<td>Surface Water</td>
<td>All bodies of water on the surface of the earth.</td>
</tr>
<tr>
<td>Thalweg</td>
<td>A line down a stream linking the deepest parts and sites of greatest flow.</td>
</tr>
<tr>
<td>Tidal</td>
<td>Water level affected by the tide.</td>
</tr>
<tr>
<td>Tidal Bore</td>
<td>A high, breaking wave of water, advancing rapidly up an estuary.</td>
</tr>
<tr>
<td>Total Alkalinity</td>
<td>A measure of a waters acid-neutralising capacity. The sum of all the titratable bases. It is usually a measure of the bicarbonate / carbonate / hydroxide content of water but can also include contributions from phosphates, borates, silicates or other bases if present.</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>The sum of the concentrations of soluble and in-soluble phosphorus.</td>
</tr>
<tr>
<td>Tributary</td>
<td>A stream that feeds or flows into or joins a larger stream or lake.</td>
</tr>
<tr>
<td>Tufa</td>
<td>A spongy, porous limestone formed by precipitation from evaporating springs and river waters, often onto leaves and stems of neighbouring plants. Also known as calcareous tufa.</td>
</tr>
<tr>
<td>Turbidity</td>
<td>Visible pollution (dirtiness) due to suspended material in the water causing a reduction in the transmission of light.</td>
</tr>
<tr>
<td>Understorey Vegetation</td>
<td>Woody plants &lt;1.3m tall, frequently with many stems arising at or near the base). Ground covers (plants without woody stems, eg grasses, sedges etc) have also been included with understorey vegetation.</td>
</tr>
</tbody>
</table>
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Bank</td>
<td>Is that part of the bank between the water mark (see below) and the high bank where it stops rising and flattens off. Also called 'high bank'.</td>
</tr>
<tr>
<td>Vegetation Cover</td>
<td>Used to assess the foliage density of each of the vegetation structural categories (eg trees, shrubs, grasses, submerged aquatic vegetation, etc). The cover is estimated in terms of the total imaginary shadow cast by each type of vegetation and is recorded as a percentage. The cover estimates for each type of vegetation are all made independently, and so the total covers do not necessarily add up to 100%.</td>
</tr>
<tr>
<td>Vegetation Profile</td>
<td>A survey of riparian vegetation (involving species identification and measurements such as diameter at 1.3m, bole and tree height, and crown width) within a 10m-wide belt transect. This transect is located at right angles to the water's edge and extends to the upper bank or edge of riverine vegetation. The vegetation profiles have also been represented diagrammatically.</td>
</tr>
<tr>
<td>Vegetation Width</td>
<td>Width of vegetation from edge of the low flow channel to where the vegetation changes from riparian vegetation to eg woodland vegetation.</td>
</tr>
<tr>
<td>Vegetation Zonation</td>
<td>The pattern or zoning of plant communities from the water's edge to the high bank.</td>
</tr>
<tr>
<td>Vegetation Structural Categories</td>
<td>The riparian vegetation is broken into structure and size classes including: tall trees &gt;30m, medium trees 10-30m, small trees 2-10m, regenerating trees &lt;2m, woody shrubs &lt;2m, vines, rushes and sedges, phragmites, herbs, grasses, ferns, mangroves, salt marsh and palms. Submerged, floating and emergent aquatic vegetation are also broken into groups.</td>
</tr>
<tr>
<td>Velocity</td>
<td>The rate of movement of water in a stream. Usually expressed as metres per second (m/sec).</td>
</tr>
<tr>
<td>Water's Edge</td>
<td>The edge of the water at the time of the survey.</td>
</tr>
<tr>
<td>Waterfall Habitat</td>
<td>A perpendicular or nearly perpendicular descent of water in a stream. Waterfalls are characterised by a height &gt;1m and gradient &gt;60°.</td>
</tr>
<tr>
<td>Water Surface</td>
<td>The surface of the water at the time of the survey.</td>
</tr>
<tr>
<td>Water Mark</td>
<td>A mark left on the bank at the ‘normal’ inundation level for the stream in the dry season (see below), before water levels subside as the dry season progresses. It’s location is shown by (i) the edge of terrestrial grasses, ferns (eg <em>Ampelopteris proliferata</em>) and other vegetation (eg <em>Pandanus aquaticus</em>) which cannot tolerate more frequent and prolonged inundation; (ii) by an area of erosion; or (iii) the boundary between different sediment types.</td>
</tr>
</tbody>
</table>

**Wetland**  
An area characterised by a high content of soil moisture, such as a swamp or bog.